Esker Lakes Provincial Park

Master Plan

Ontario

ESKER LAKES PROVINCIAL PARK

Master Plan

November 1978

Ministry of
Natural
Resources
Ontario

Ontario
Ministry of Natural Resources
Minister

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Toronto Ontario
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MINISTER'S APPROVAL STATEMENT

Esker Lakes Provincial Park, classified as a natural environment park, is an area of high natural and recreational value. For over two decades, Esker Lakes has provided camping, hiking, canoeing and fishing opportunities to both local residents and tourists. In addition, the park landscape contains several scientific features such as esker ridges, fossil dune complexes and deciduous forest stands which are highlighted in the park's interesting and informative interpretive program.

While ensuring the provision of year-round recreational activities, the master plan emphasizes the protection of significant natural features which help to make Esker Lakes one of Northeastern Ontario's most popular provincial parks. The valuable commentary provided by individuals and groups during the public participation program is gratefully acknowledged. I look forward to continued public interest in the implementation of this plan and in the planning of other provincial parks throughout Ontario.

In accordance with The Provincial Parks Act, Sections 1d and 7a, I am pleased to approve the Esker Lakes Provincial Park Master Plan as the official policy for the future development and management of the park.

James A.C. Auld

Hon. James A. C. Auld
Minister

November, 1978

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Metric Measures

Unit	Equivalent
1 centimetre (cm)	0.3937 inches
1 metre (m)	3.2808 feet
1 kilometre (km)	0.6214 miles
1 square kilometre (sq km)	0.3861 square miles; 100 ha
1 hectare (ha)	2.4710 acres
1 cubic metre (cu m)	35.3148 cubic feet
1 litre (l)	0.2200 gallons
1 kilogram (kg)	2.2046 pounds
1 kilowatt (kw)	1.3410 horsepower
1 degree celsius (°C)	°C x $\frac{9}{5}$ + 32 = degrees Fahrenheit (°F)

TABLES

FIGURES

MASTER PLAN HIGHLIGHTS

Esker Lakes Provincial Park, located 37 km northeast of Kirkland Lake, has been open to the public since 1957 and for the past 20 years has served as a popular camping spot for Northern Ontario and Quebec residents.

Classified as a natural environment park, Esker Lakes provides good opportunities for brook trout, northern pike, yellow perch and lake trout fishing. Outboard motors are not allowed on park lakes because of their small acreage. Although hunting has been prohibited in the park, hunters may use the park campground while hunting outside the park.

Esker Lakes presently provides 136 campsites and has the development potential for an additional 114 sites. These additional sites will be developed as camping demand increases and funds permit.

The park also offers good interior camping, canoeing and hiking opportunities in conjunction with its well established interpretive program.

Maintenance of the environmental integrity of the park is a major objective of this plan. This is reflected in the zoning, policies and management strategies outlined for the park.

Figure 1

Northern Administrative and Northeastern Planning Regions

1.0 INTRODUCTION

The Esker Lakes Provincial Park Master Plan establishes policy for the planning, preservation, development and management of park resources. It outlines the user and recreational market; it describes the biophysical, cultural and recreational resources; and identifies the goal, objectives and policies for the park. The plan also includes guidelines for comprehensive development and resource management plans for the park.

1.1 Park Location

Esker Lakes Provincial Park, situated in Northeastern Ontario, 37 km northeast of Kirkland Lake and 608 km north of Toronto (longitude 79°51' to 79°54', latitude 48°16' to 48°22'). It is located in Kirkland Lake District which is part of the Northern Administrative Region, Ministry of Natural Resources. The park is also found in the Northeastern Planning Region as defined in the Strategic Land Use Plan of the Ministry of Natural Resources (Figure 1).

2.0 REGIONAL SETTING

2.1 Climate

Esker Lakes Provincial Park is situated on the boundary between two major Northern Ontario climatic regions, the Northern Clay Belt and the Height of Land (Chapman, Thomas, 1968). The climate of both regions is described as modified continental. Minor climatic differences do occur between these two regions, probably because of their difference in altitude. The Height of Land region, stretching to the south of the park, ranges from 304 m to 486 m above sea level whereas the Northern Clay Belt, stretching to the north of the park ranges from 213 m to 304 m above sea level. Both regions are marginally influenced by the Great Lakes and Hudson Bay. It is uncertain what climatic influence Lake Abitibi, located 29 km north of the park, has on Esker Lakes. The mean annual temperature of 1.1^{o}C is the same for both climatic regions as is the mean daily minimum temperature of -24.4^{o}C for January. The mean annual precipitation is 49.6 cm and 48 cm; the mean annual length of growing season is 160 and 162 days respectively.

2.2 Physiography

Approximately two-thirds of the Northern Administrative Region is underlain by the Superior Province of the Canadian Shield with

the Hudson Bay Lowlands comprising all of the remaining area. Esker Lakes itself is underlain by bedrock of the Superior Province or more specifically by early precambrian volcanic and sedimentary rocks which, not far from the park, are known to contain economic deposits of copper, silver, zinc, gold and iron. Overlying most of the region are glacial deposits ranging in composition from clayey to sandy till. The Great Clay Belt located only a few kilometres north of the park and the Lesser Clay Belt located 32 km south of the park are underlain by clay and silt. Both clay belts were formed by pro-glacial Lake Barlow-Ojibway. The topography of the region ranges from moderately hilly terrain 160 km south of the park to relatively flat lowlands 250 km north of the park. The park area itself occupies an undulating sandy site of glaciofluvial origin.

2.3 Vegetation

The Northern Region contains segments of two major forest regions, the Boreal Forest and the Great Lakes - St. Lawrence Forest regions. Esker Lakes is located in the southern limits of the Missinaibi - Cabonga section of the Boreal Forest region. The predominant forest type in this section is balsam fir, black spruce and aspen with jack pine occupying sandy sites. The forest cover in Esker Lakes is predominantly white birch, jack pine and trembling aspen. Birch die-back and spruce budworm have infested vast areas of timber in the southern parts of the Northern Region. Birch die-back is quite common in Esker Lakes.

2.4 Population

In 1971, the Northeastern Planning Region, as defined by the Strategic Land Use Program of the Ministry of Natural Resources, consisted of 559,849 people, or 7.2 percent of the population of Ontario (Ministry of Natural Resources, 1971). It is projected that by the year 2001, the population of this planning region will exceed 775,000 people. Unlike most of the province, the census districts of Cochrane and Timiskaming experienced a decrease in population (-1.3 and -1.4 percent respectively) from 1961 to 1971. The region itself has a narrow and slow-growing economic base and a shortage of manufacturing industries. The industries resulting from mining, forest activities and tourism provide the major sources of employment in the region. Communities are widely scattered, their sites being largely determined by the location of ore bodies and timber reserves. A community typical of this situation is Kirkland Lake which is located 37 km southwest of Esker Lakes Provincial Park. The population growth of this community in the future, as in the past, will be largely dependent upon outside demand for minerals, wood fiber and tourism.

Major population centres within an 80-km radius of Esker Lakes Provincial Park are Kirkland Lake, Ontario and Rouyn-Noranda, Quebec, with populations of 15,205 and 28,562 respectively. By adding the population of smaller centres such as Virginiatown, Larder Lake, Matheson and Englehart, as well as the scattered rural population, the total population within an 80-km radius of the park is approximately 52,000. The total population within a 183-km radius is approximately 100,000.

Services such as shopping, medical care, churches, laundromats, entertainment, Ontario Provincial Police, accommodations, food and

fuel are available at Kirkland Lake.

2.5 Access

The major traffic arteries which provide access to the Northern Region are Highway 11 through North Bay and Highway 144 and Highway 129 through Sudbury and Thessalon, respectively. The main traffic artery providing access to the park is Highway 66, the lifeline of the Kirkland Lake and Rouyn-Noranda Tourism Corridor. Highway 66 joins in the west to Highway 11, the route to Southern Ontario through North Bay and through Northern Ontario by way of Kapuskasing. To the east, Highway 66 crosses the Quebec border and becomes Highway 59 which leads south to Ottawa and then Montreal (Figure 2).

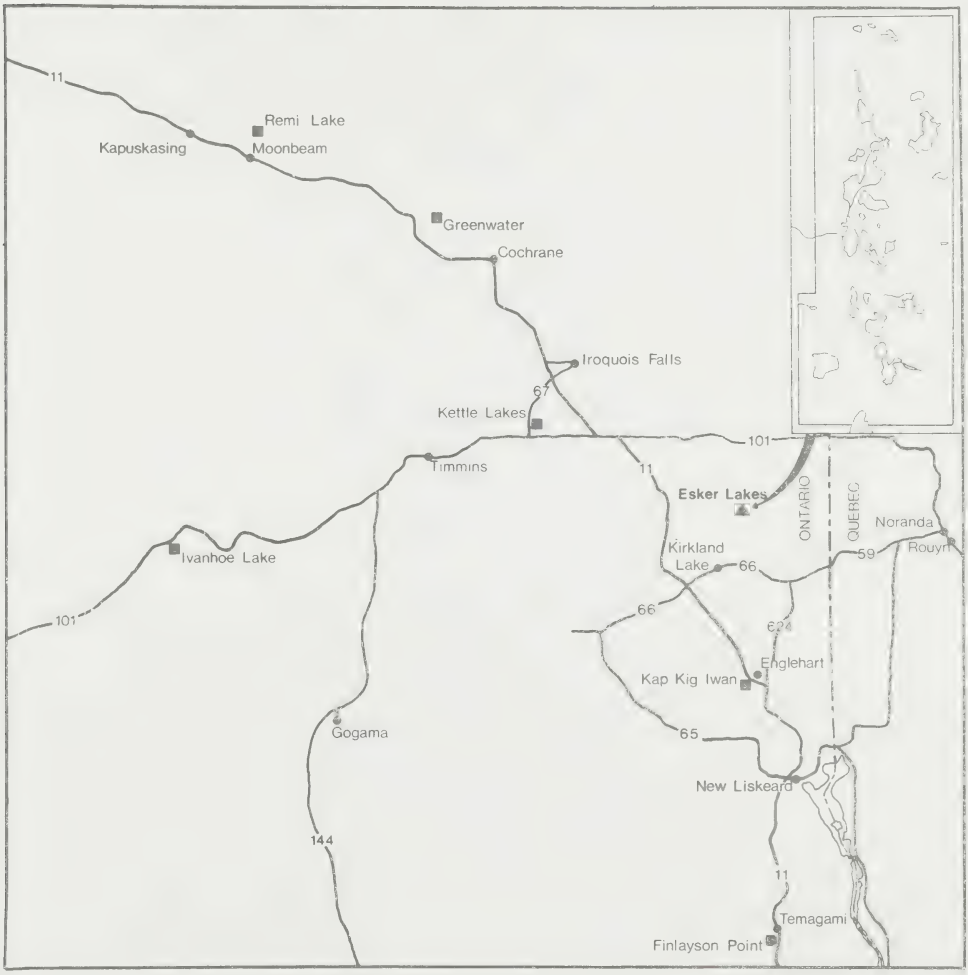
The nearest railway station is about 40 km away in Swastika which is on the Ontario Northland Railway line. Connections can be made via the Ontario Northland Railway with the Canadian National Railway and Canadian Pacific Railway at North Bay or with the Canadian National Railway at Rouyn. The nearest bus station is 37 km away at Kirkland Lake and the nearest airport is 10 km northwest of Kirkland Lake.

Regional Setting

▲ Park Location
■ Provincial Park
● Town

Scale : 1 cm to 17.5 km

North



3.0 MARKET AREA

The Northern Region has a substantial number of attractive, well-equipped private and public campsites and parks and excellent fishing and hunting opportunities. Though the region has considerable potential for tourism, it has the problem of being a good distance from the major markets. However, an increasing number of visitors are coming to the region in all seasons because of improved highways, increased leisure time, over-utilization of southern recreational resources, increased desire to escape the confines of the urban life style, and higher disposable income. Interest in the many northern parks cannot be directly correlated to the socio-economic traits of the surrounding population. Rather, the increase is attributed to the users who travel north from Southern Ontario and the United States.

Similar factors, on a more localized scale, influence the type and number of visitors to Esker Lakes. Esker Lakes' location with respect to travel routes and the types of recreation experiences offered is of primary importance. The park is 53 km from Highway 11, the Trans-Canada Highway, and 17 km north by gravel road from Highway 66, a major east-west route. These distances effectively limit the number of overnight campers who often prefer to stay in the several private and municipal campsites available close to the highway. Similarly, the 17 km gravel access road limits the number of day-users, especially since there are other fine beaches in the vicinity

of Kirkland Lake. On the other hand, Esker Lakes' proximity to the Quebec border and the absence of adequate recreation parks in the Rouyn-Noranda vicinity attracts a high percentage of Quebecois from Rouyn-Noranda and Val d'Or.

3.1 Provincial Parks

Six provincial parks (Kettle Lakes, Greenwater, Remi Lake, Ivanhoe Lake, Finlayson Point and Kap-Kig-Iwan) are located within a 300-km radius of Esker Lakes Provincial Park. Kettle Lakes Provincial Park and Remi Lake Provincial Park, located 142 km and 280 km, respectively, north of Esker Lakes are classed as recreation parks. Both parks primarily serve local populations. Greenwater Provincial Park, 193 km north of Esker Lakes, serves both the local population and tourists who stop over to take the Polar Bear Express. Finlayson Point Provincial Park, 163 km south, serves as a stopover park for visitors travelling Highway 11 between Kirkland Lake and North Bay. Kap-Kig-Iwan Provincial Park located 87 km southwest of Esker Lakes on Highway 11, also serves as a stopover park. Ivanhoe Lake Provincial Park situated west of Kettle Lakes Provincial Park along Highway 101, serves a dual role of stopover and destination park. None of these six provincial parks attract any substantial number of visitors away from Esker Lakes because all have assumed specific roles in serving the travelling public and the local population nodes. A small Quebec provincial park located on Highway 59 about 48 km east of Esker Lakes does not seem to influence the Quebec residents' use of the park.

3.2 Municipal and Private Parks

Three municipal parks located within a 48 km radius have considerable influence on Esker Lakes' use. These are Raven Beach in Larder Lake, McGarry Park near Virginiatown, and Culver Park near Swastika. All three parks, located just off Highway 66, have sand beaches, are heavily used by both stopover tourists and locals and are currently expanding (Figure 3). To a certain degree, it can be assumed that the length and condition of the Esker Lakes access road limits the use of the provincial park by locals and stopover tourists. Numerous other Crown land and private recreation areas, such as Crystal Lake and Round Lake, are available mainly for day-use. Private campgrounds are not as influential on the camper visitation as compared to the municipal campgrounds. Table 1 lists the private and municipal campgrounds while Figure 3 illustrates their location.

TABLE 1

Campgrounds Within 80 km of Esker Lakes Provincial Park

Highway Access		Area (ha)	Number of Campsites
# 11	Willow Trail Park, Englehart	1	20
#560	Rosepoint Campground, Charlton	2	12
# 11	Halfway House Trailer Park, Tarzwell	2	6
#112	Northern Lights Campground, Dane	39	10
# 66	Culver Park, Swastika*	19	80
# 66	Yost's Campsite, near Dobie	2	12
# 66	Raven Beach Campground, Larder Lake*	40	60
# 66	McGarry Municipal Park, Virginiatown*	10	78
# 11	Sesekinika Resort, Sesekinika Lake	2	20
# 11	Pull-In Campground, Kenogami	11	5
# 11	Vi Mar Campground, Matheson	1	7
	TOTAL	129	310

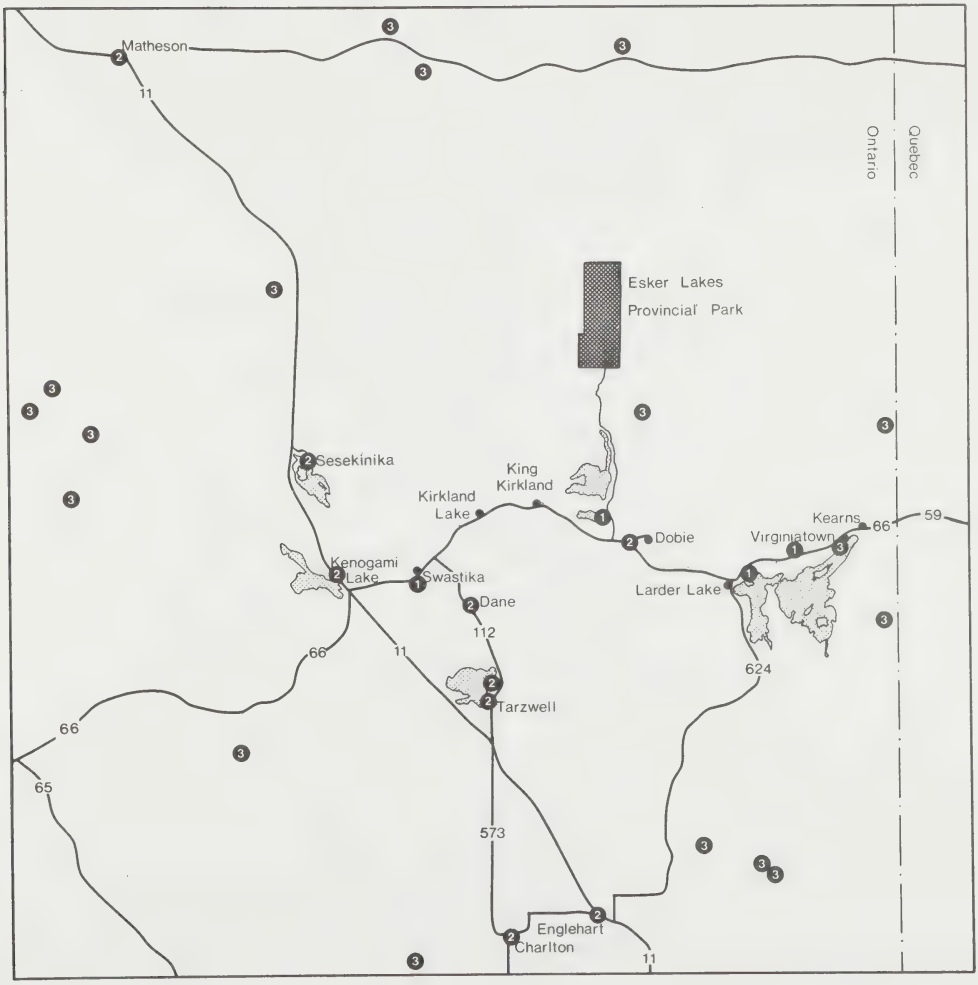
*denotes a municipal park

Local Setting

1 Municipal Park
2 Private Sector Park
3 Crown Land Access Point

Scale: 1 cm to 5 km

North



3.3 Other Outdoor Recreation Opportunities

Esker Lakes Provincial Park serves as a focal point for many recreational opportunities which take place on the 663,790 ha of Crown land in Kirkland Lake District. Fishing is good in the lakes of the nearby Misema chain, the Larder-Raven river chain, and in Labyrinth Lake and Crosby Lake. The landscape surrounding the park offers numerous viewing experiences. Abandoned mine workings and tailings, local mines such as Kerr-Addison, Macassa and Adams which offer tours and the Museum of Northern History offer good interpretive experiences. Clear-cut areas, regenerated stands of vegetation, mills and a tree nursery near Kirkland Lake provide ample opportunity for the visitor to learn about the forest industry. For canoeists, designated canoe routes in the Kirkland Lake District provide excellent opportunities for day and extended trips. The district also has an untapped hiking and cycling trails exists along historic settlement routes. Numerous small but good and safe sand beaches are found in the district. One in particular, Crystal Beach, attracts most of the day-use visitors in the Esker Lakes market area. Good hunting opportunities for bear, moose, grouse, ducks and rabbits exist in the Kirkland Lake District.

3.4 Regional and Local Recreational Needs

In 1973, the Ontario Ministry of Natural Resources collected and presented information regarding the outdoor recreational patterns of Northeastern Ontario residents (Northeastern Ontario Recreation Survey, 1973). Survey results included the Kirkland Lake area. The survey found that in the Northeastern Planning Region, as defined by the Strategic Land Use Program of the Ministry of Natural

Resources, 53 percent of the total recreational occasions were oriented to outdoor activities. Of these outdoor activities, the greatest participation in the Planning Region and the Northern Administrative Region, respectively, was for: nature appreciation (16 percent and 20 percent), bathing (17 percent and 15 percent), picnicking (16 and 20 percent) and fishing (14 and 17 percent). The lowest rate of participation was for skiing and snowmobiling.

The survey also pointed out certain recreational habits of local residents, such as 67 percent of the total outdoor recreational occasions occurred in conjunction with a day-trip (involving leaving and returning home in the same day) as opposed to an extended-trip where at least one night was spent away from home.

In the Northeastern Planning Region and the Northern Administrative Region, respectively, private land received the most use for outdoor activities (46 percent and 39 percent) followed by Crown land (37 percent and 34 percent). Commercial parks, municipal parks and provincial parks in the Northeastern Planning Region and the Northern Administrative Region received the least amount of outdoor use of 5 percent each for the commercial and municipal parks and 6 percent and 8 percent for the provincial parks.

Background studies for the Northeastern Planning Region have identified that there is public concern for certain recreational and cultural facilities for the region. The studies identified that the preservation of historic sites and buildings and the increase in public camping and boating facilities were high priority concerns. Other concerns were expressed to increase the number of provincial parks, hiking trails and other year-round recreational and tourist facilities.

4.0 THE PARK

4.1 Legal Status

Esker Lakes Provincial Park was formally established by Ontario Regulation 144 in 1957. Under the 1967 Provincial Parks Classification System, it was designated as a natural environment park. In 1969, the park area was withdrawn from the Abitibi Paper Company's concession by agreement with that company. In February 1974, a proposal was made to add 129.5 ha of Crown land to the southwest corner of the park. This proposal was approved in 1976. Final addition of this area to the park is pending formal establishment by Ontario Regulation.

4.2 Park Boundaries

Esker Lakes is bounded to the north by Thackeray Township and Elliott Township, to the south by Morrisette Township and Arnold Township and to the east by Clifford Township and to the west by Bisley Township. In area, Esker Lakes occupies the westerly 2.4 km of Clifford Township and the easterly 0.8 km of Bisley Township for a total area of 3,238 ha. Esker Lakes is perfectly rectangular except for a much smaller rectangular area abutting the southwestern corner of the park.

4.3 Land Disposition

No private land holdings exist within the park nor does the park abut any private land. Esker Lakes is completely encircled by Crown land. However, the access road right-of-way does cross 13 patented mining claims in the Township of Gauthier and the Township of Arnold (Figure 4). Access rights to the park have not been guaranteed.

4.4 Access Road

Access to the park presently consists of a 17-km gravel road from Highway 66 to the park entrance. Active timber hauling occurred on this road until 1976.

4.5 Forest Activities

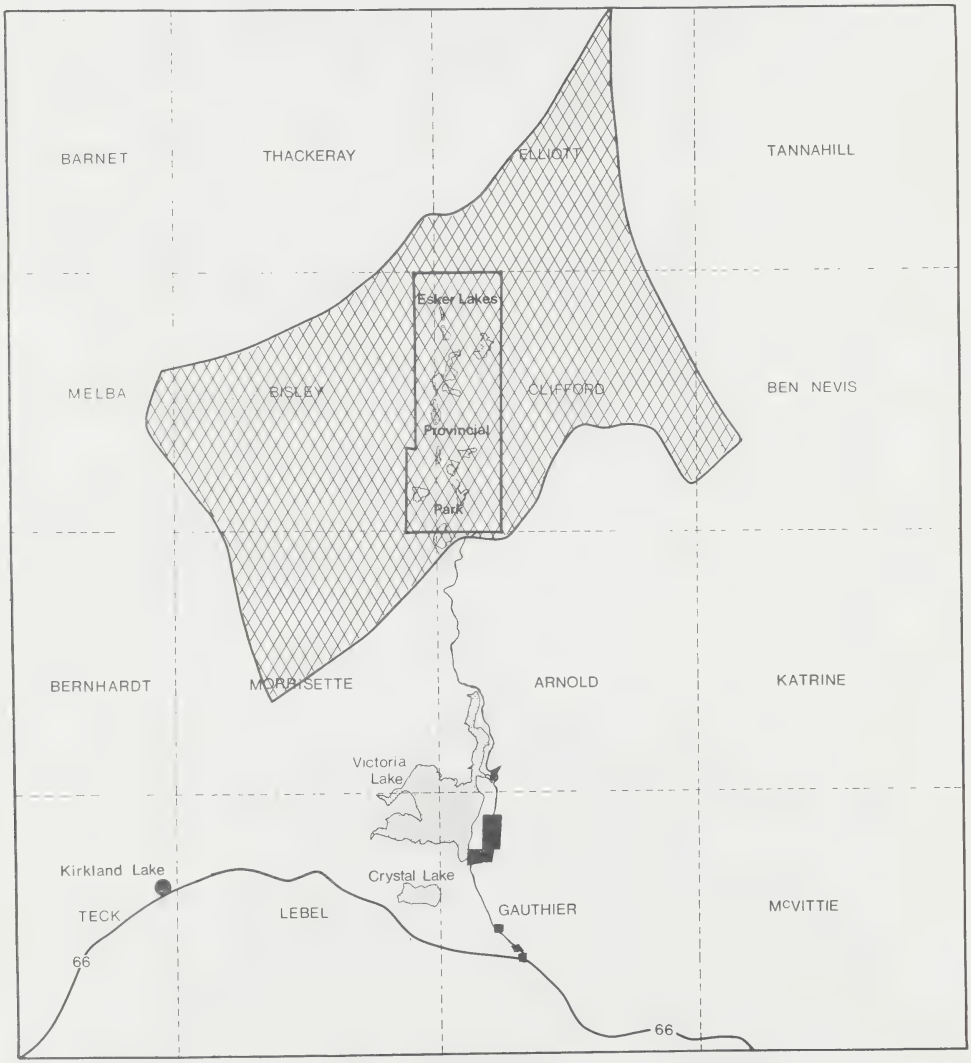
No timber extraction has ever taken place in the park even-though it is almost completely surrounded by timber licences and clear-cuts. The only part of the park presently under a timber licence is the 1976 extension area (Figure 5). This area has never officially been removed from the timber licence. Most of Bisley Township up to the park boundary has been cut by Kokotow Lumber Company since 1972. Similarly, Thackeray Township, has been either completely cut over to the park boundary (1957-70) or burned by forest fires (1966 and 1971). This area has since been replanted with jack pine and black spruce, tublings, seed and nursery stock. A small portion of Elliott Township was cut in 1968 and replanted with jack pine in 1971. Since 1971, the forested areas abutting the northeastern corner of the park have been clear-cut. Approximately

Figure 4
Land Disposition

Trapline KL-51
Patented Mining Claims
Township Boundaries

Scale: 1 cm to 2 km

North



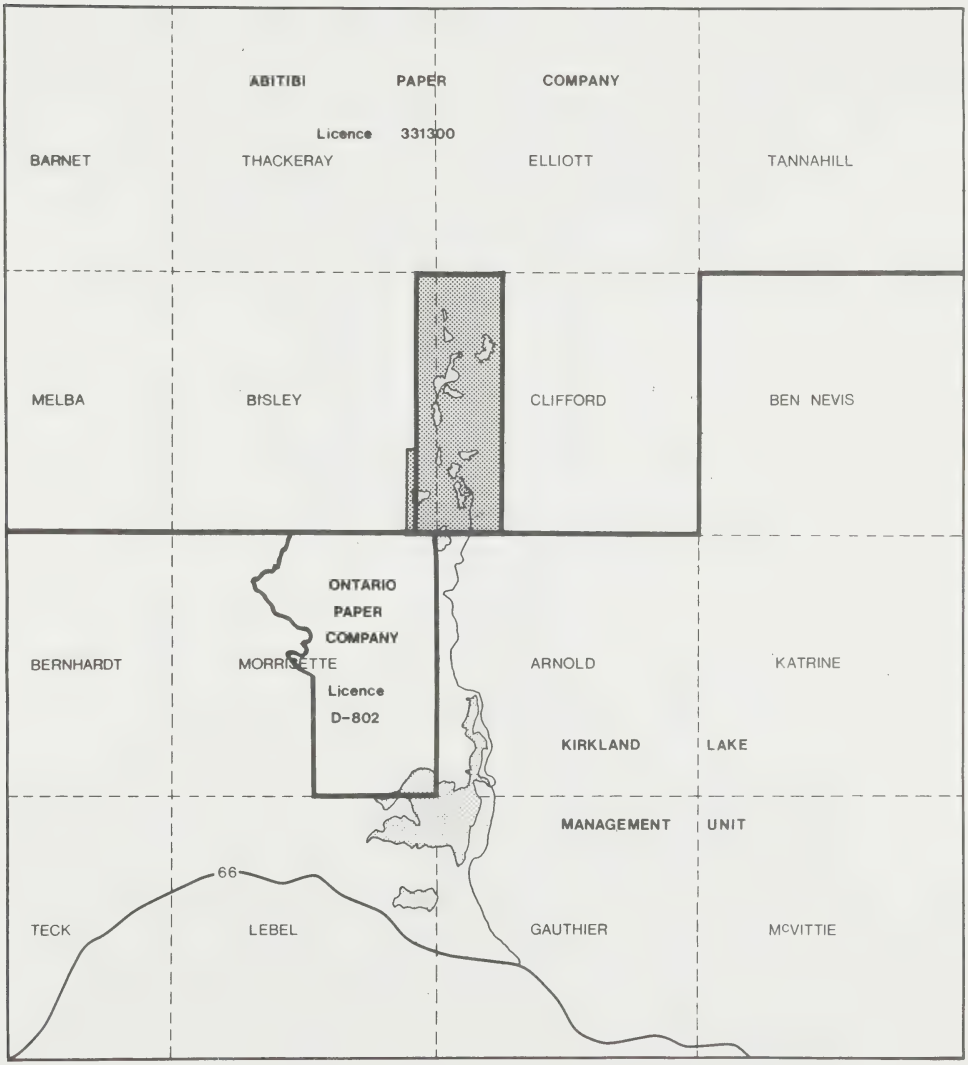
Timber Licences

Esker Lakes Provincial Park

Timber Licence Boundaries

Scale: 1 cm to 2 km

North



69 ha of the southern part of Clifford Township adjoining the eastern boundary of Esker Lakes Provincial Park was clear-cut in 1964 and 1972, then replanted to tublings in 1973.

4.6 Wildlife

Kirkland Lake District Trapline 51 (KL-51) covers a total of 231.1 km^2 surrounding and including Esker Lakes Provincial Park (Figure 4). In 1976-77, this line produced 44 beaver, 6 marten, 2 otter, 1 fisher, 4 fox and several muskrat. The principal fur species in the park from an economic standpoint is beaver. An aerial survey of this trapline in October 1974 showed a total of 13 active colonies within the park boundary. Controlled trapping of nuisance beaver has always been an important management strategy for the park.

Although hunting is prohibited within Esker Lakes, hunters may use the park campground while hunting outside the park. As the clear-cut areas around the park grows back, excellent browse will develop for moose which in the future may create greater hunting pressure adjacent to the park.

4.7 Fisheries

Legislation was enacted during 1972 (O.R. 172/72) prohibiting outboard motors on the park's lakes. The lakes in Esker Lakes Provincial Park have been managed by the Division of Fish and Wildlife since 1950 as part of the District sport fishery.

Introductory stockings of brook trout have been made in many park lakes since 1954 in order to expand the local trout fishery and to improve the park experience. Smallmouth bass were introduced to Hazel Lake in 1973.

Use of live bait fish is prohibited in all park lakes to prevent the introduction of coarse fish species (Schedule 11, Section 7, Ontario Fishery Regulations). Although several park lakes were reclaimed in order to establish the trout fishery, white sucker, brook stickleback, fathead minnow, slimy sculpin, Iowa darter, ninespine stickleback and mottled sculpin have been found since reclamation.

Resource data from 1970-1972 indicates that the heaviest fishing pressure in the park occurs during the summer months on Panagapka, Allan, Ramey, Lulu and Mall lakes. Panagapka Lake has been utilized to the greatest degree chiefly because of the campground development around its periphery.

4.8 Winter Recreation

No winter recreational facilities are maintained in the park. Snowmobiling in the park is permitted only on unploughed roads, parking lots and portages. Winter angling is very popular. Cross-country skiing and snowshoeing are possible when the park access road is ploughed.

4.9 Visitor Services

A visitor services program was intensified in the park in 1973. It then consisted of movies twice a week and one 2.4-km self-guiding trail. Currently, a program is operated daily by two naturalists. It is an intensive program which provides guided hikes, children's programs and evening programs. The program also has a French language component. Heavy use by Quebeçois occurs primarily during the St. Jean de Baptiste Day holiday.

4.10 Park Development

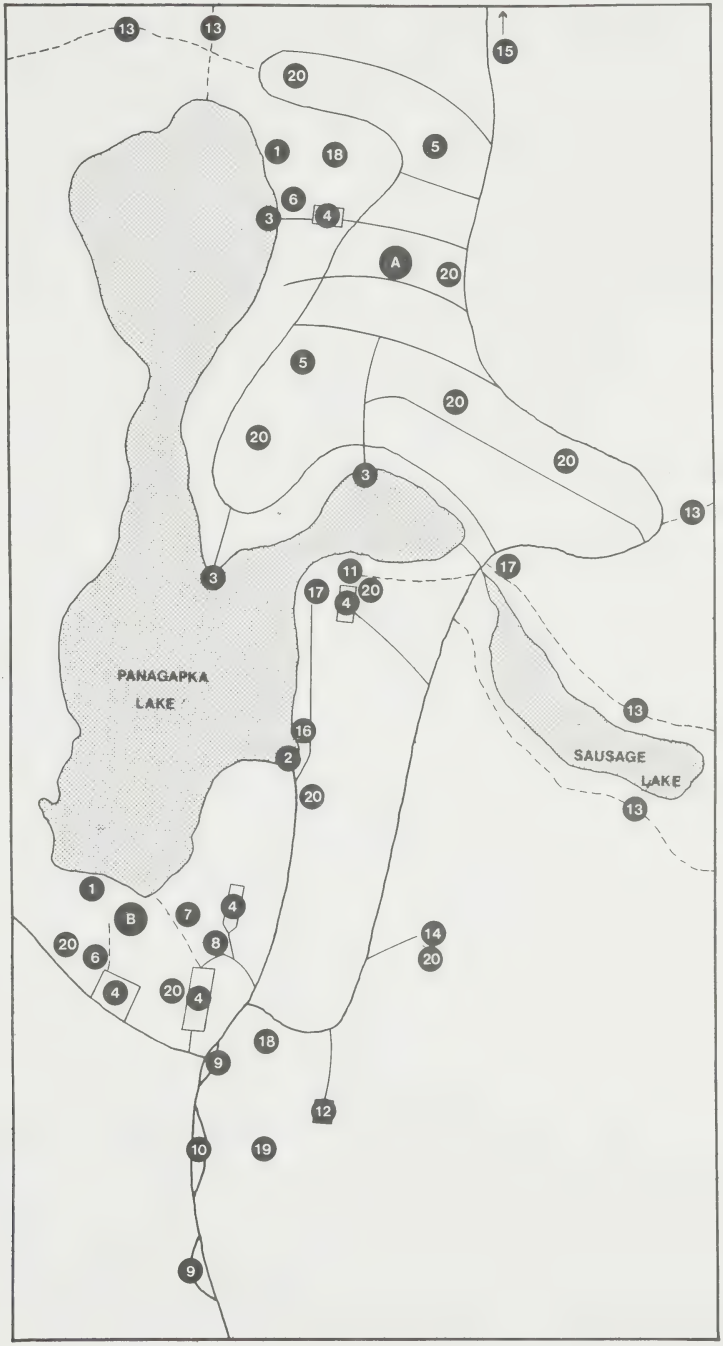
Camping, day-use and support facilities are concentrated around Panagapka Lake at the south end of the park (Figure 6 and Figure 7). Table 2 provides a list of facilities available in the park. In the park interior, there are 13 km of canoe routes, 32.6 km of hiking and nature trails, 10 campsites and 11 km of emergency exit and service roads. The interior facilities are considered part of the total park experience and therefore, do not necessitate an interior camping permit. The park emergency exit road is a necessary escape route in case of flash fires. This road is used as part of the Trapper's Hiking Trail and as an access route for interior park maintenance. Even though the road is gated to prevent other vehicular access, some problems exist with motorcycles using this route. The route is open to snowmobiles in winter.

4.11 Facility Capacity

With 136 campsites, Esker Lakes can provide a maximum of 30,504 camper-days over a 93-day season. During the months of July and August when the heaviest use is experienced, the optimum capacity of the existing campground is 20,336 camper-days based on a 60 percent campsite occupancy rate and 4 persons per campsite (Table 3).

Over a 62-day summer season, the wet beach can supply 5,890 user-days and the dry beach 7,316 user-days (Appendix 1, Table 1). The wet beach capacity represents the optimum capacity of the total beach area. In contrast, the picnic area can supply 27,900 user-days over the same 62-day summer season (Appendix 1, Table 3). However, because of the limited capacity of the wet beach area and because it is assumed that 60 percent of all picnickers will use the beach (Ministry of Natural Resources, 1977), one carrying capacity has been formulated for both areas. As a result, the maximum use of the

Park Facilities



A Campground
B Day-use Area
1 Beach
2 Boat Ramp
3 Dock
4 Parking
5 Comfort Station
6 Changehouse
7 Shelter
8 Store
9 Trailer Station
10 Park Gate
11 Amphitheatre
12 Maintenance Complex
13 Trail
14 Overflow Camping
15 Group Camping
16 Fish Cleaning Table
17 Activity Centre
18 Recreation Area
19 Staff Quarters
20 Vault Privies

Scale: 1 cm to 75 m

Park Development

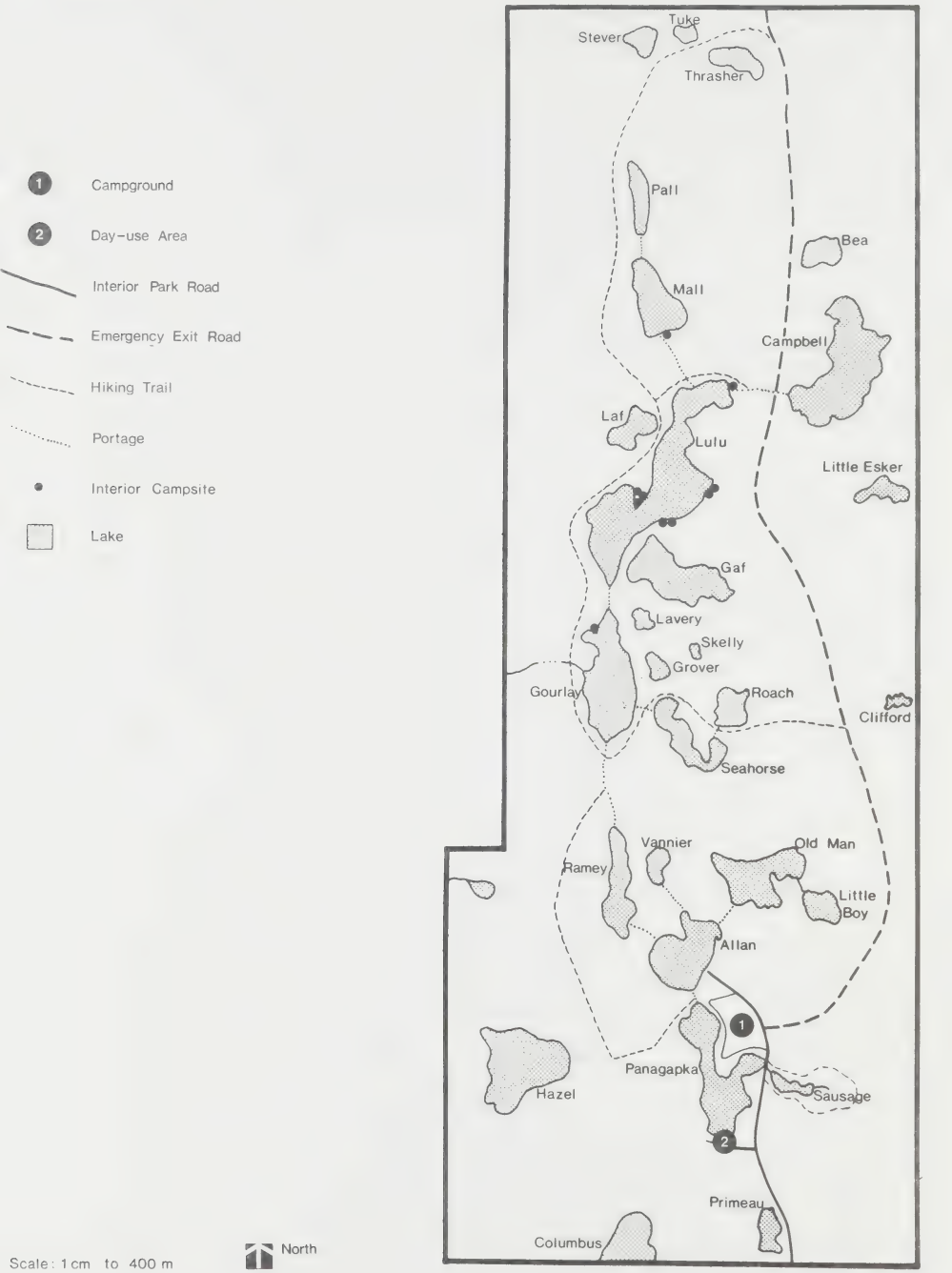


TABLE 2

Inventory of Park Facilities 1976

Swimming Beaches		
Camper's beach		
dry	2,325 m^2	
wet	698 m^2	
Day-use beach		
dry	3,720 m^2	
wet	2,232 m^2	
Internal Roads	6.4 km	(granular base)
Access Roads	17 km	
Bridges	1	
Campsite Units	136	
Group Camp Areas	1	(100 capacity)
Picnic Area	14 ha	
Parking Space	100	(granular base) campground: 200 day-use area
Wells	1	
Water Pressurized Systems	2	
Docks	5	
Boat Launching Ramps	2	
Electric Transmission Lines	2.8 km	
Trailer Sanitation Station	1	
Garbage and Sewage Dump	1	
Park Office	1	
Entrance Control Booth	1	
Summer Staff Quarters	1	
Maintenance Building	1	
Concession Building	1	
Change Houses	4	
Comfort Stations	2	Type 9
Vault Privies	18	
Picnic Shelters	1	
Outdoor Exhibits	1	
Amphitheatre	1	
Ice House (Utility Building)	1	

TABLE 3

Capacity of Existing Recreational Facilities (1976)

	Existing Development	Optimum Seasonal* User-Day Potential	Optimum July/August User-Day Potential**	User-Day Consumption**	Surplus (+) or Deficit (-) of User-Days**
Campground	136 campsites	30,504 camper-days		13,873	+ 6,463
Day-use Area					
Picnic Area	14 ha	41,850	27,900	1,795	+26,105
Day-use Beach	3,720 m^2 (dry beach)	10,974	7,316	1,795	+ 5,521
	2,232 m^2 (wet beach)	8,835	5,890		+ 4,095
Trails					
Trapper's Trail (hiking)	30.4 km	3,534	2,280	273	+ 2,007
Lonesome Bog (nature)	2.2 km	3,197	2,070	1,575	+ 495
Canoe Route	13 km	2,200	1,500	550	+ 950
Interior Campsites	10 sites	1,500	1,000	300	+ 700

* Based on a 93-day park season.

** Based on a 62-day July-August season.

NOTE: Capacity formulas for the above were obtained from the "Ontario Provincial Parks Landscape Design Principles and Guidelines", Ontario Ministry of Natural Resources, Park Planning Branch, March 1977.

total day-use area is 158 persons per day or 9,796 user-days for July-August.

Existing interior canoeing and camping facilities can annually provide 2,500 user-days over a 62-day season. Canoe access to most lakes is possible by means of well-maintained portages, all less than 1 km in length. While the preferred route has been Panagapka-Allan-Ramey-Gourlay-Lulu, use of the more out-of-the-way lakes is increasing. Ten interior campsites have been developed which can provide a maximum of 1,000 camper-days. These sites have been designed as overnight stopovers for canoeists and hikers. Esker Lakes has approximately 32.6 km of hiking and nature trails with a potential to accommodate 4,350 users during July-August.

The 30.4 km Trapper's hiking trail is designed so that visitors may enjoy an 8 km, 15 km or 30.4 km hike. The Lonesome Bog nature trail, 2.2 km in length, introduces visitors to the ecology of the park.

4.12 Market Analysis

Seventeen years of park operations and statistics indicate that the greatest percentage of park visitors are campers. A large percentage of the campers plan their visit for an extended period. The average length of stay has shown a slight increase beyond 3 days in recent years. The number of campers increased steadily from 1957 until 1974 when the camper numbers started to decline slightly including a 2 percent decrease in 1975, a 5 percent decrease in 1976 and a 17 percent decrease in 1977. The park's campsite occupancy has also declined since 1973 with a 52 percent July/August occupancy in 1976 and a 46 percent occupancy in 1977. (Table 4).

The present trend of the levelling off of the figures can best be attributed to rising fuel costs.

The majority of campers are from Ontario (80 percent), some come from other provinces, mainly Quebec (15 percent) and the remaining 5 percent originate in the United States.

Camper origin statistics indicate a trend that each year more campers are coming from Ontario while fewer are coming from the United States. The number of campers from provinces other than Quebec has diminished over the years while those from Quebec (particularly Rouyn) have consistently composed 15 percent of the total number of campers. Of the Ontario campers, more than one-half have originated in Southern Ontario, in particular, Toronto. Thus, almost 40 percent of all campers in Esker Lakes Provincial Park come from highly urbanized areas in Southern Ontario. Only 30 percent of the total number of campers are from Northeastern Ontario which reflects the trend that people travel away from their home town during summer holidays.

Percentage of Camper Origins 1975, 1976 and 1977

	1975	1976	1977
Northern Ontario	30.6	24.0	29.8
Southern Ontario	49.5	51.2	44.7
United States	4.8	4.0	4.5
Other			
Inside Canada	15.1	20.5	21.2
Other Countries	0.0	0.3	0.8
	100.0	100.0	101.0

Source: Ontario Provincial Park Statistics, 1975, 1976, 1977.

TABLE 4

Park Statistics

	1965	1966	1970	1971	1972	1973	1974	1975	1976	1977
Visitors	14,314	17,553	29,724	43,717	32,248	23,960	25,190	31,271	23,254	19,780
Campers*	3,623	3,663	4,763	5,926	5,336	6,706	6,537	6,666	6,206	5,500
Camper-Days*	11,308	10,675	14,513	17,762	15,630	19,316	19,912	21,137	19,773	16,358
Average Length of Stay	3.1	2.9	3.1	3.0	2.9	2.9	3.0	3.1	3.2	3.0
Average Party Size	3.8	3.9	3.7	3.7	3.8	3.5	3.5	3.5	2.5	3.0
% Occupancy	28.3	25.0	39.0	49.0	44.0	52.0	55.0	52.0	52.0	46.0
Daily Vehicle Permits	936	1,104	1,070	953	856	1,030	995	1,070	977	651

Source: Ontario Provincial Park Statistics

*includes senior citizens

Indeed, the park has never attracted a great deal of day-use, as the number of daily vehicle permits sold averages about 1,000 each year. In 1977, 651 daily permits were sold, representing about 2,300 day-use visitors. This figure is slightly less than from the previous year.

During July and August in 1976 and 1977, day-use totalled 3,419 and 1,795 user-days respectively. During fall, winter and spring, for the same years, an additional 4,000 user-days were consumed by spring and fall fishermen, winter fishermen and snowmobilers.

Although the park can annually provide 17,856 day-use opportunities, actual consumption of user-days does not approach this figure nor is it evenly distributed throughout the year. Peak load periods of heaviest use invariably come on summer weekends. It is during these peak load times that optimum use is reached. For instance, on an average summer weekend, between 100 and 250 people utilize the day-use area. On weekends, occasionally as many as 500 or 700 day-users have been recorded.

The park has never attracted a great deal of interest from organized groups for either day-use or camping. In 1976, 5 groups totaling 170 campers spent 510 camper-days in the park. In 1977, 25 groups totaling 442 people spent 900 camper-days which representing an increase in camper-days.

In 1977, senior citizens utilized 203 camper-days which represents a 51 percent decrease over 1976 use which totalled 411 camper-days. As well, in 1976 and 1977, senior citizen day-use amounted to 152 and 216 day-user days respectively.

Present interior camping use utilizes approximately 300 camper-days while 500 user-days are consumed by summer interior canoeists and another 500 user-days by fall and spring fishermen on one-day

excursions up the Esker Lakes chain.

During the 1976 summer season 1,575 visitors used the self-guided Lonesome Bog Trail and 273 used the Trapper's trail. An additional 356 people, mostly school groups, used the Lonesome Bog Trail during the off-season.

Fishing, recreational paddling, photography and nature appreciation are popular on most park lakes. At present, the most popular canoe route is Panagapka-Allan-Ramey-Gourlay to Lulu Lake.

Winter use presently consists of ice fishing and some snowmobiling. The Kirkland Lake Motorized Toboggan Club does on occasion, travel the unploughed access road and the emergency exit road.

5.0 BIOPHYSICAL RESOURCES

5.1 CLIMATE

Climate is regarded as an important factor influencing recreational pursuits. Visitor statistics often reflect this fact, particularly in Esker Lakes Provincial Park where May and September weather conditions become unpredictable and park visitation statistics show great variability.

The average late spring and early autumn frosts occur on June 9 and September 10 respectively. This results in the park and the surrounding area having approximately 93 frost-free days each year. However, extremes of only 56 days and as many as 105 days of frost-free season have been recorded. Lakes are generally frozen for about 170 days each year, from mid-November to the first week of May (Chapman, Thomas, 1968).

The mean daily temperatures in July range from $11^{o}C$ to $24^{o}C$ with an average daily temperature of $18^{o}C$. Extremes of over $38^{o}C$ and less than $0^{o}C$ have been recorded. The mean daily temperatures in January range from $-23^{o}C$ to $-12^{o}C$, with an average daily temperature of $-18^{o}C$. Extremes of $-10^{o}C$ and $-46^{o}C$ have been recorded. Annual precipitation (rain plus rain-equivalent of snow) averages about 77 cm. The average annual snowfall at Kirkland Lake is 267 cm. July and August rainfalls average 7 cm and 8 cm respectively.

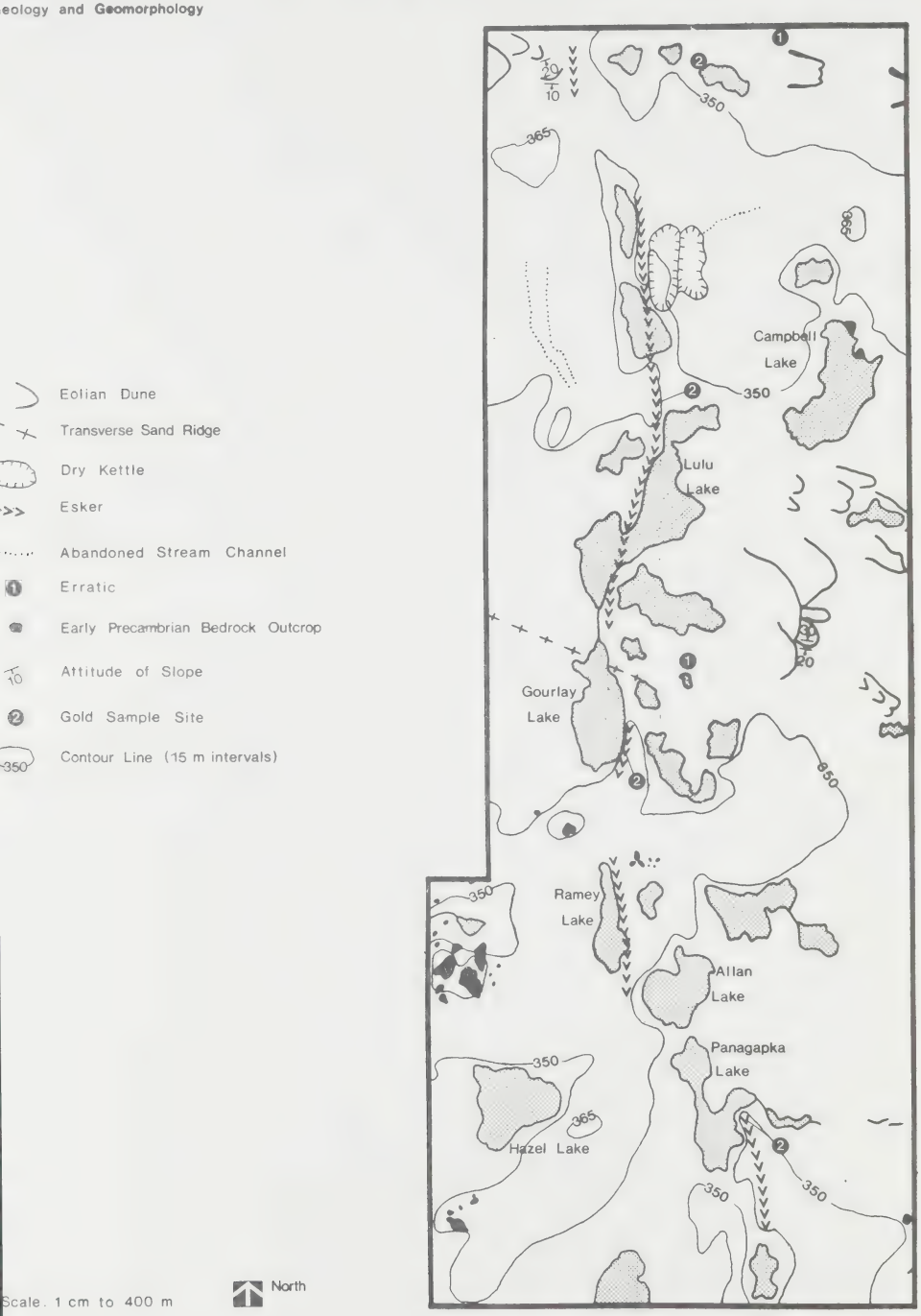
Esker Lakes lies in an area which is influenced by several air masses including moist sub-tropical air, moist and dry arctic air and dry continental air masses. For this reason, extreme and rapid variations in weather often occur. The variable weather and relatively cool average daily temperatures in summer are offset by long hours of daylight and low humidity.

5.2 Geology and Geomorphology

Esker Lakes Provincial Park is underlain by Early Precambrian volcanic rocks (more than 2.5 billion years old), part of the Abitibi subprovince of the Superior Province of the Canadian Shield. The Abitibi subprovince contains areas rich in metallic mineralization and extends from Chibougamou, Quebec, through Kirkland Lake to Timmins. Some of the richest mines in the world, extracting gold, silver, copper, lead, zinc, iron and other metals occur in this belt.

A very small portion of the park is exposed bedrock (Figure 8). The most abundant area of outcrop is found north of Hazel Lake, where bedrock relief exceeds 20 m above the outwash plain west of the park. Other small outcrops occur southwest of Hazel Lake, northwest of Ramey Lake and Vannier Lake, on the northeastern shore of Campbell Lake, and near the southeastern corner of the park. All bedrock in the park is Early Precambrian in age. It consists of weakly metamorphosed lava flows and pyroclastic rocks of basaltic to andesitic composition. They are the product of submarine and subaerial volcanism. They were deformed into a subvertical position in Precambrian time and are presently exposed as ice-scoured knobs and flat surfaces.

Although the bedrock topography is almost completely buried by extensive Quaternary deposits, it is partially expressed by a major



(Source · Frey 1975)

lineament that trends north-south through the park in the form of a narrow bedrock valley. The lineament is mapped from Hudson Bay to Lake Timiskaming and is named the Hudson Bay Paliolineament (Lovell & Caine, 1970; Kutina, 1971; Kutina & Fabbri, 1972). It was produced by Precambrian crustal extension and probably controlled the position and extent of Quaternary glaciofluvial deposition along its course (Frey, 1977). The course of the buried valley within the park is suggested by the deep trenches in the bathymetry of several park lakes and the central esker segments (Figure 8).

The Quaternary record consists of extensive deposits of unconsolidated glaciofluvial sand and gravel and eolian sediments. Minor amounts of glaciolacustrine sediment and pre-outwash till also are present. The park is morphologically dominated by a large, segmented esker ridge, parabolic eolian sand dunes, and numerous small kettles (two of which are not occupied by water) (Figure 8).

The esker ridge is the central crest of the Munro Esker, a wide glaciofluvial and deltaic outwash complex that as a small portion of the esker's 249 km total length crosses the length of the park. The Munro Esker apparently occupied and overflowed the bedrock valley of the Hudson Bay Paleolineament as sub-glacial streams were channelized by the bedrock topography and deposited vast amounts of sediment during the melting of the continental ice sheet in the park area. Deltaic outwash accumulations occur along the Munro Esker where the esker-depositing stream emerged from the ice sheet into the waters of pro-glacial Lake Barlow-Ojibway and deposited its finer sediments.

Fine-grained sedimentary deposits from Lake Barlow-Ojibway usually overlay the coarser sands and gravels of the esker. The numerous lakes in the park are kettle lakes, depressions formed

when ice blocks, buried by outwash sediments of the receding glacier, melted allowing overlying sediments to collapse. These depressions are filled with clear water which has percolated through the esker sands.

Located in the southeast, northeast and northwest corners and in the east-central part of the park are sand plains of fine eolian sand removed from the Munro Esker by westerly winds. In and around the park, these sands have been blown by prevailing northwesterly winds into parabolic (U-shaped) dunes, open to the northwest. Some of the dunes appear as ridges up to 9 m in height. Other dune formations in the south of the park and along the access road are lower and have arms which, in most instances, are stabilized by jack pine stands.

A number of glacial erratics, large boulders carried within the advancing glacier and deposited when the ice melted, occur throughout the park. Exceptionally large examples are noted on Figure 8.

The aforementioned events occurred during the Late Wisconsinan Substage of the Quaternary Period, about 10,000 to 9,700 years ago, primarily during the latter when the continental glacier melted from its maximum thickness of several hundred metres. The topography of the park today is the product of modifications to the esker and outwash deposits by post-glacial winds, water and gravity. Areas of highest elevations, some of which may not have been covered by glacial Lake Barlow-Ojibway, remain less altered than the rest of the park.

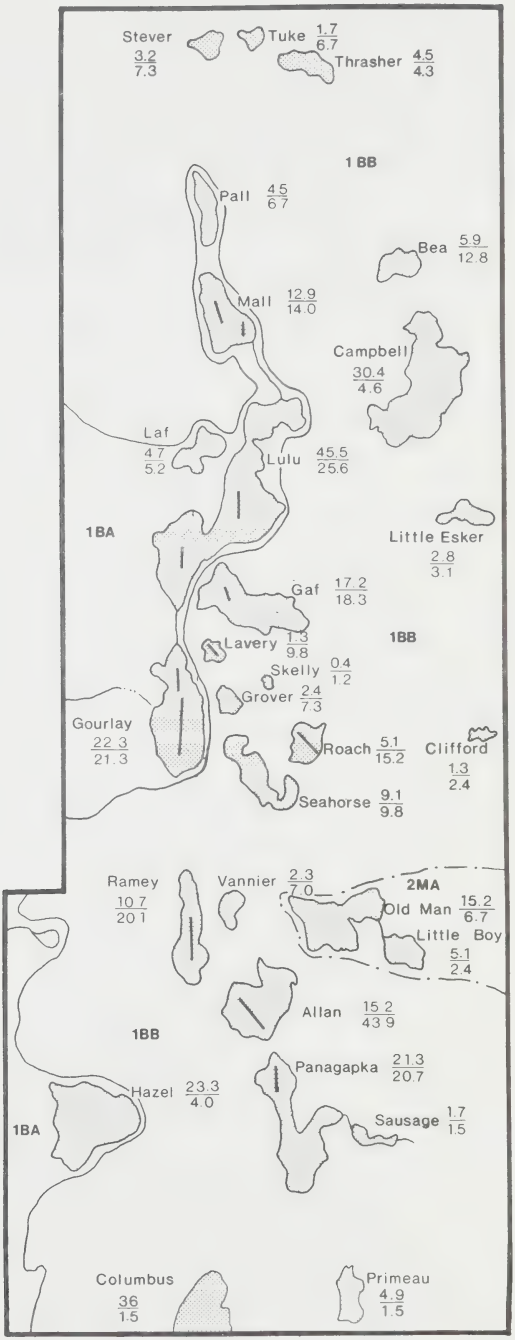
The unconsolidated sediments of the park range from silt and fine sand in the eolian dunes to fine and medium outwash sands, coarse sand and sandy gravel in the central esker ridges to minor amounts of silty and sandy till near the bedrock exposures. These sediments are the parent materials of the plant-sustaining soils of

the park. The topsoils have an average depth of 25 cm and form a protective covering over the unconsolidated sediments. Both the topsoil and underlying sediments became very susceptible to erosion when the upper organic soil zone (less than 10 cm thick) was removed or compacted by traffic, particularly on the steep slopes of the eolian dunes and other ridges. The high porosity of the sub-soil sediments provides excellent drainage, however, when the sediments are frozen, early spring snowmelt often causes excessive sheetwash resulting in natural soil erosion on some slopes.

5.3 Hydrology

The park is named for the series of small, clear-water kettle or esker lakes. The twenty-eight lakes, one of which is only partially within the park boundary, have a total area of 290 ha and vary in size from 0.4 ha to 45.5 ha (Figure 9). The size of these lakes and the very slow outlet drainage have combined to create a very sensitive lake system prone to overuse and eutrophic conditions.

Little Esker Lake and Clifford Lake are shallow ponds surrounded on three sides by the parabolic eolian sand dunes. Hazel Lake and Columbus Lake are also shallow lakes which probably resulted from ponding of surface water. The lakes are supplied by subsurface springs and, with the following exceptions, lack a surface outlet. The Lulu-Gourlay chain, part of the Hudson Bay drainage system, drains westward through Gourlay Creek. The Old Man-Little Boy chain, part of the Great Lakes - St. Lawrence drainage system has ephemeral drainage eastward into the Misema River. Laf Lake has ephemeral drainage westward. The height of land separates these two major drainage systems.



4.5 Area in Hectares
6.7 Maximum Depth in Metres
Trend of Bathymetric Contours > 9.2 Metres
Height of Land
Tertiary Watershed Division
1 Hudson Bay System
BA Black River Watershed
BB Magusi River Watershed
2 Great Lakes – St. Lawrence System
MA Misema River Watershed

Scale: 1 cm to 400 m

North

The deeper, cold water fishery lakes (Bea, Gaf, Allan, Panagapka, Ramey and Roach) have sand and gravel bottoms, a high winter oxygen count, and a pH count ranging between 6 and 7.5 (Table 5). The shallower lakes host warm water fisheries.

TABLE 5

Hydrological Data

Lake Name	Area (Hectares)	Depth (m) Maximum	Depth (m) Mean	O_2 Distribution (PPM)	Disc (M)	pH	
Bea	5.9	12.8	5.2	8(W)	5.8	6.5	cold water fisheries
Gaf	17.2	18.3	4.7	13(W)	7.9	6.0	
Allan	15.2	43.9	16.0	8(W)	6.1	7.5	
Mall	12.9	14.0	4.9	9(W)	7.3	7.0	
Pall	4.5	6.7	3.0	3	3.0	6.8	
Panagapka	21.3	20.7	4.7	7(W)	4.9	7.0	
Ramey	10.7	20.1	-	7(W)	4.3	6.7	
Roach	5.1	15.2	5.5	10(W)	4.6	5.9	
Seahorse	9.1	9.8	2.8	4(W)	4.6	5.9	
Campbell	30.4	4.6	-	-	-	-	warm water fisheries
Columbus	36.0	1.5	-	-	-	-	
Gourlay	22.3	21.3	9.5	9(W)	4.6	7.5	
Grover	2.4	7.3	-	-	-	-	
Hazel	23.3	4.0	2.2	11	3.0	6.5	
Laf	4.7	5.2	-	-	-	-	
Lulu	45.5	25.6	8.0	10	5.5	7.0	
Old Man	15.2	6.7	3.2	4(W)	4.6	5.9	
Stever	3.2	7.3	-	-	-	-	
Thrasher	4.5	4.3	-	-	-	-	
Tuke	1.7	6.7	-	-	-	-	
Clifford	1.3	2.4	-	-	-	-	no fisheries potential
Lavery	1.3	9.8	4.4	9	4.6	5.0	
Little Boy	5.1	2.4	-	-	-	-	
Little Esker	2.8	3.1	-	-	-	-	
Primeau	4.9	1.5	-	-	-	-	
Sausage	1.7	1.5	-	-	-	-	
Skelly	0.4	1.2	-	-	-	-	
Vannier	2.3	7.0	-	-	-	-	

W = winter sample

Source: Fisheries Management Plan, Fisheries Unit #5 - Esker Lakes Provincial Park, 1973, Kirkland Lake District

5.4 Vegetation

Plant and animal communities in the park vary with topography, soil type and moisture and range from those adapted to dry, sandy upland conditions to those adapted to low, damp bog and open-water habitats. The biotic communities found in the park exist primarily because of the Munro Esker. However, other natural and unnatural occurrences have influenced these habitats. Forest fires, which have swept through sections of the park at various times in the past have modified particular habitats. As well, most of the forested area adjacent to the park has been clear-cut which may influence plant and animal distributions within the park.

Esker Lakes Provincial Park is located in a vegetation transition zone between the Boreal Forest Region and the Great Lakes - St. Lawrence Forest Region (Rowe, 1972). The park is on the southern margin of the Northern Clay Belt, being almost entirely on one of the trains of glaciofluvial and outwash materials which are characteristic of the southern portion of this belt. The floral affinities of the park are primarily boreal with canopy species such as white birch, jack pine and trembling aspen predominant. Associated with the boreal communities, however, are certain more southerly species such as red maple, white pine, teaberry, pinesap and winterberry. Of these, teaberry occurs usually in suitable habitats throughout the park while most of the other southern species are more sporadically distributed.

The transitional nature of the area is illustrated by the fact that southwards toward Lake Timiskaming, the "Lake Forest" species become more numerous and more important. Sugar maple, yellow birch, basswood, red oak and bur oak are successively added to the species complement. To the north, red maple, white pine and red pine

diminish rapidly in significance and are successively eliminated from the complement. Of these species, red pine extends the farthest north.

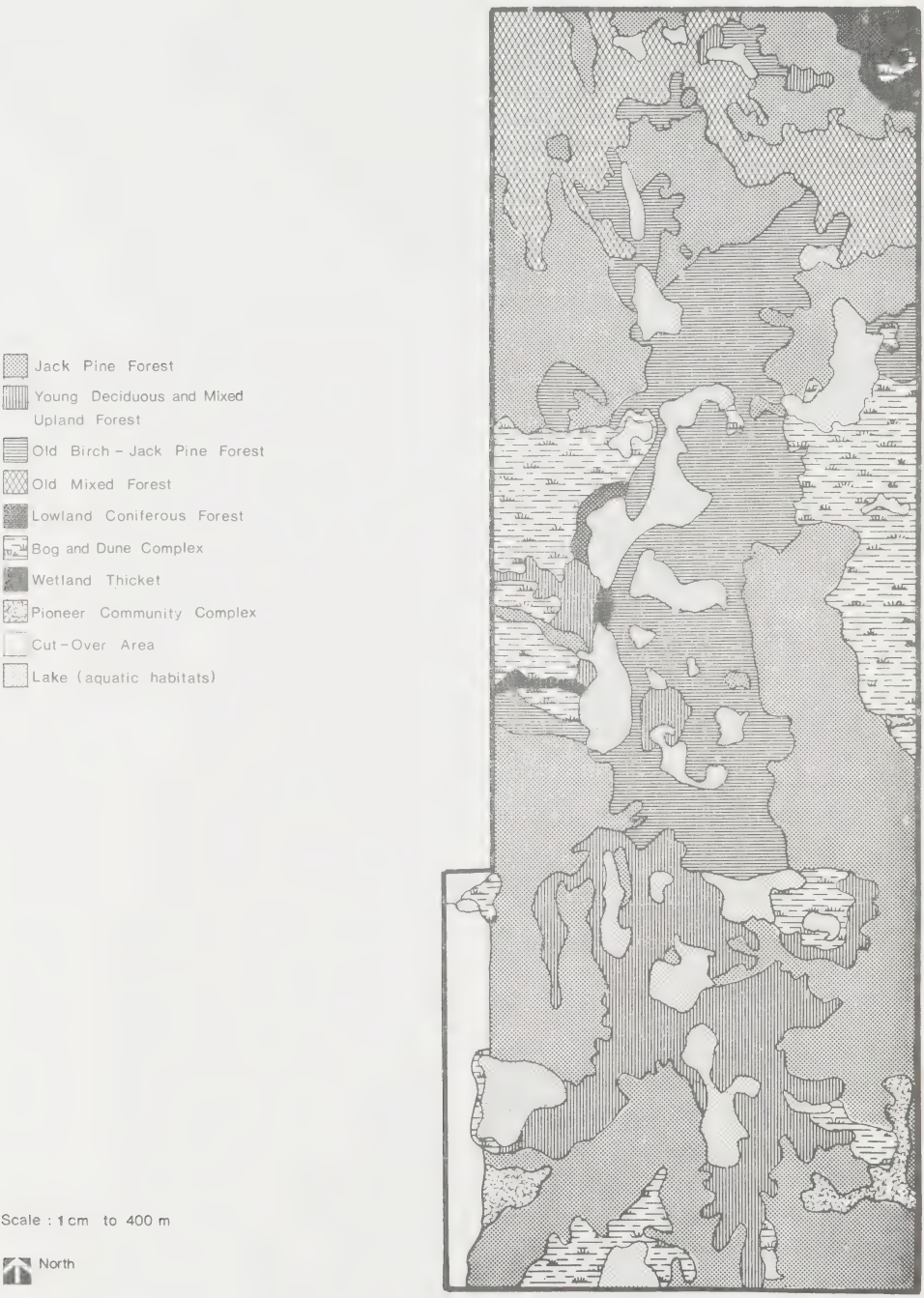
The park also has eastern affinities. The most significant representatives of these affinities are sheep-laurel and mountain alder (green alder, northern alder), both of which are dominant in the areas in the park suitable as their habitat.

The park may be divided into two general physiography types. One type is a central band of ridged and kettled, outwash and glaciofluvial materials which is flanked by the other physiographic unit of undulating sand plains which are either of eolian origin or have been strongly modified by eolian influences.

Jack pine stands of various ages and showing various regeneration stages are characteristic of the sand plains. The central ridged areas in the south are occupied by more or less pure deciduous forests of recent fire origin. These are predominately white birch although aspen is locally dominant or co-dominant. In the northwest and north-central area of the park, there is a very complex, variable, uneven-aged mixed forest stand of an older fire origin containing 70-year-old white birch, jack pine, balsam fir, white and black spruce, trembling aspen, red maple and white pine. The oldest and most complex stands are in the northwest. Only in these 100-year-old stands are balsam fir and spruce important components along with white birch. In the northwest, the spruces and balsam fir are increasing in importance while the white birch is regenerating more slowly. In the north-central areas, white birch is the primary reproducing species. Jack pine and trembling aspen are declining elements throughout both areas (Figure 10).

In the west-central area of the park, there is a highly

Vegetation


Jack Pine Forest
Young Deciduous and Mixed Upland Forest
Old Birch - Jack Pine Forest
Old Mixed Forest
Lowland Coniferous Forest
Bog and Dune Complex
Wetland Thicket
Pioneer Community Complex
Cut-Over Area
Lake (aquatic habitats)
Scale : 1 cm to 400 m
North

distinctive lowland zone containing a variety of wetter communities including a closed stand of even-aged black spruce growing in a peat moss matte, black spruce-balsam fir stands, wetland thicket and bog communities, a moist stand dominated by an open canopy of large mature aspen and an understory of mountain ash and mountain maple. Various fern species are prominent in the ground flora of this community giving the association an exceptionally attractive aspect.

Low peat bogs, in different stages of succession, cover at least 202 ha of the park. The majority of the bog area occupies large "saucer" depressions in the eolian sand flats. The bogs in these areas are in a relatively mature state and dominated by low thickets of leatherleaf and scattered black spruce. There is the sporadic occurrence of enriched zones within them showing an increased richness of flora. Smaller bog areas occupy a number of other sites including dry kettles, lake shorelines, small blowouts and other depressions. In some cases, as in the Sausage Lake bog, the bog succession has been modified by fluctuating water levels.

The ground flora in the park is largely typical of the boreal forest in this region. Under the jack pine stands, sheep-laurel and low sweet blueberry in association with mosses are dominant. Other characteristic plants of this association are sweet fern, stemless lady slipper, trailing arbutus and rough mountain rice. Teaberry is abundant in these stands. Special note should be made of the abundance of ground cedar and the presence of pipsissewa in this association.

In the deciduous and mixed forests, boreal ground flora characteristic of relatively dry sites dominate. These include such species as blueberries, bush-honeysuckle, bunchberry, wild lily-of-the-valley, mosses and bracken fern. More mesic forest

herbs such as blue-bead lily, wild sarsaparilla, goldthread, violets, sweet-scented bedstraw and currants are restricted in their distribution. The bog and other wetland areas are characterized by their own specialized ground flora including such species as pitcher plant, round-leaved sundew, small bog cranberry, cotton grass, northern green orchid, blue flat, calla lily, marsh marigold, common skullcap, horned bladderwort, joe-pye-weed, water avens, enchanter's nightshade, water lobelia, pipewort, arrowhead, water lilies, bulrushes, cattail and various grasses and sedges.

5.5 Fauna

Moose and black bear are the principle large mammals in Esker Lakes. Evidence of the moose may be found throughout the area, particularly in spring and fall. The regeneration of clear-cut areas around the park may help to attract more moose in the next few years. The abundance of berries, as well as the proximity of the park garbage dump, attracts a few bears to the area. Deer are seen more frequently in the Kirkland Lake area. The timber wolf and snowshoe hare are seen occasionally.

Small mammals in the park include beaver, weasel, mink, otter, red fox, muskrat, marten and fisher. Of these, mink, otter, marten and fisher are not likely to maintain stable park populations because of their transient nature. Recent clear-cutting around the park will undoubtedly cause changes in the distribution of local species.

Few squirrels inhabit the park whereas, least chipmunk are abundant. The little brown bat and eastern garter snake are particularly numerous around the developed areas. Several species of toads and frogs and insects have been observed.

A wide variety of avian species are known to nest in Esker Lakes. Ruffed grouse is fairly common and spruce grouse has been spotted. While waterfowl nesting areas are limited, two species, black duck and ring-necked duck, nest in the park each year. American bittern, common loon and great blue heron have been seen in the park. Esker Lakes is a stopping spot during the spring migration of songbirds, notably warblers. The best bird-watching opportunities in the park are in early summer when vireos, thrushes, sparrows, hawks, owls, warblers, blackbirds, grackles, blue jays and woodpeckers can be seen.

Fish species found in Esker Lakes include lake trout, brook trout, northern pike and yellow perch. The park provides the best trout waters within a 48-km radius. As a supplement, adjacent waters provide ample, varied fishing opportunities as can be seen from the following list.

Lake Name	Fish Species
Beaverhouse	smallmouth bass, northern pike, pickerel
Crystal	lake trout
Dickson	northern pike
Howard, Keith, Kennedy, Misema, Verna	northern pike, pickerel
Rat	northern pike, pickerel
Rozon	brook trout
Victoria-McTavish	smallmouth bass, northern pike
Wynn	brook trout

A more detailed discussion of management strategies is given in the fisheries management plan.

6.0 CULTURAL RESOURCES

6.1 Prehistory

Sites relating to three different prehistoric cultures have been located in areas adjacent to the park (Pollock, 1975): the Shield Archaic Culture (3,000 - 1,000 B.C.), the Laurel Culture (200 B.C. - 7 A.D.) evidence of which is found in the Pearl Beach area and the Ojibway and Algonkian cultures (1,600 - 1,900 A.D.) as evidenced from sites on Howard Lake and Victoria Lake, respectively.

There is no evidence of prehistoric occupation in the park area. It is, however, conceivable that the general area of the park was used for several centuries by the Ojibway as a hunting and trapping area. Caribou were abundant on the flat sandy area of the esker, and this may have prompted the Ojibway to travel into the park area, away from major water transportation routes. An old foot trail of unknown age, origin or significance can still be followed from Howard Lake, along jack pine ridges south of the park, then alongside the park lakes continuing east from Campbell Lake to connect with the Magusi River waterway at Rat Lake. A trail branching to the west through Bisley and Melba townships appears to connect with the Black River and eventually with Lake Abitibi. Portions of these trails are still occasionally used by members of the Beaverhouse Indian band.

At present, Kirkland Lake is the only district in the Northern Region with a definitive study of its prehistory completed (Pollock, 1975).

Additional archaeological studies took place during 1975 on Beaverhouse Lake, located just east of the park. This work located two pictograph sites.

6.2 Early Settlement

Farming in the Timiskaming Clay Belt started in the 1880s out of a demand by the forest industry for farm products. During the 1890s, additional settlers moved into the area from Southern Ontario via the Ottawa River and Lake Timiskaming. By 1903, their numbers were large enough to merit the construction of the Timiskaming and Northern Ontario Railway (Historic Sites Branch, 1973).

One of the first Caucasians in the park area was Willet G. Miller, provincial geologist, who reached Larder Lake in 1901 by travelling up the Blanche River from Lake Timiskaming then along the Abitibi Branch (now called the Larder River) to the lake. From Larder Lake, Miller portaged into the Misema River chain just east and south of the park. Though Miller returned to the Blanche River, it should be noted that the Misema River and Magusi River can be used to reach Lake Abitibi to the north and may once have been used by fur traders.

6.3 Mining

Since the first discoveries of gold in the Kirkland Lake and Larder Lake areas in 1906 and 1907, mining has been the most important factor in the development and the economy of the Kirkland Lake area. A major historic theme segment focussing on the

Timiskaming-Porcupine gold camps has been identified for this area in A Topical Organization of Ontario History (Historic Sites Branch, 1975). Conceivably, Esker Lakes could serve as a focal point for interpreting this theme. Every hectare of land inside and surrounding the park has at one time been explored and/or staked by prospectors.

Out of the scores of properties explored, about a dozen major mines were developed. The mines of Toburn, Sylvanite, Wright-Hargreaves, Teck-Hughes, Lakeshore, Macassa and Upper Canada in Kirkland Lake and Kerr-Addison in Larder Lake operated at peak production from 1920 to 1950. All except Macassa and Kerr-Addison have discontinued production at this time.

Access into the area in 1944 was by means of a mine supply road cut from the north arm of Victoria Lake through the park to the Iris Gold Mine in Harker Township. This road forms part of the park's hiking trails and emergency access route.

The Geological Survey of Canada sampled esker sediments at four sites within the park as part of a design and feasibility study of esker sampling for mineral exploration (Lee, 1965). The highest concentration of gold in the sampling program is found in the park (Figure 8).

Several abandoned mine workings are found near the park. The Upper Canada, closed in 1972, is fully intact while the partially destroyed Upper Beaver and Queenston still have part of their head frames and mill foundations. Other abandoned mines in the area include the Ritchie, the Anoki and the Bidgood.

Just off the park access road north of the junction of Highway 66 is a huge sand pit. Sand from this pit was transported by rail to the famous Lakeshore Mine in Kirkland Lake where it was used as

back fill in the abandoned workings.

An extensive open pit iron mine, Adams Mine located in Boston Township is in operation and regularly performs blasting operations. The shock of these can be faintly felt in the park a distance of 19 km.

The proximity of the park to such old mining areas as Kirkland Lake and Larder Lake creates a significant interest among the park visitors in the local mining story. Curiosity is rampant, inspired by yarns of early prospectors, the gold rush, past and present life-styles in mining "boom-town" settlements as well as speculation about the future of mines in the Kirkland-Larder Lake camps.

6.4 Forest Operations

The mining supply road built in 1944 through the park to Harker Township served to attract lumbering interests. A sawmill, apparently owned by Ed Wilson Lumber Company, operated at Victoria Creek in the late 1940s. The Haileybury Lumber Company also operating in the area, cut jack pine and spruce for sawlogs. In the 1940s and 1950s, licences were issued to Upper Canada Mines Limited for the purpose of cutting timbers for mining construction from jack pine and spruce stands east of the park in Arnold Township and Clifford Township. Logging in and around the south end of the park was carried out by Frank Panagapka, a local timber operator.

In 1969, the park was withdrawn from Abitibi Power and Paper Company's licence by agreement with that company. Today the only part of the park still under timber licence is the 1976 park extension. The extension was cut over during 1968-69 and 1973-74.

Prior to 1949, the Abitibi Power and Paper Company maintained fire protection in the park area from a fire tower in the Pushkin

Hills east of the park and from a patrol cabin on Verna Lake and another on Dickson Lake. Since 1949, fire protection was taken over by the Ontario Forestry Branch which then became the Department of Lands and Forests and is now the Ministry of Natural Resources.

6.5 Park Development History

Originally, development in Esker Lakes Provincial Park began in 1953. In 1955-1957, prisoners from the Monteith Industrial Farm were assigned to clear 20 campsites on the southwestern shore of Panagapka Lake, establish picnic areas, construct toilet facilities and docks and improve the access road. Between 1958 and 1961, work continued under the Federal-Provincial Unemployment Relief Program to expand the Panagapka Lake campground to its present capacity of 136 sites. Presently, facilities outside the campground area include a log park office built in 1959, picnic shelter, maintenance building, amphitheatre, a concession and concessionaire's residence. In 1970, two comfort stations were built (Figure 6).

In 1959, Ministry staff recommended to the Surveyor General of Ontario and the Canadian Board on Geographical Names, changes in some of the names of the park's lakes. Some lakes were given the names of World War II casualties who had resided or enlisted within the census District of Timiskaming. Others were named after prominent local residents.

7.0 ENVIRONMENTAL ANALYSIS

Esker Lakes Provincial Park is a diverse park. It is capable of providing quality camping, canoeing, fishing and backcountry recreation opportunities. But also, Esker Lakes contains numerous significant plant communities or life science features and geomorphological landscapes or earth science features which merit preservation. The proposed administrative policies for the Ontario Provincial Park System identifies policies for the preservation in nature reserves of naturally occurring earth and life science features such as those located within Esker Lakes. Nature reserves therefore are intended to contain original plant and animal species native to Ontario, a geological or geomorphological feature representative of a specific period in the province's geological history, a feature of scientific or interpretive value or a benchmark area against which environmental change can be measured. Esker Lakes Provincial Park contains candidates for all of these.

Sensitive and significant features are the key factors in determining the degree of development which Esker Lakes should accommodate. Therefore, an optimum level of development, based on recreational quality standards and environmental constraints, must be reached beyond which it may not be advisable to develop.

7.1 Sensitive Features

KETTLE LAKES: Pollution, particularly from sewage, motor oils or soap, would quickly and severely affect water quality. The park's lakes have a limited capacity to sustain use because of their small size and lack of outlets.

EOLIAN DUNE AREAS: Covering the eolian dunes and ridges in the park is an upland soil averaging 25 cm in depth. This soil has formed on the surface of sand, sand gravel, and silty to sand till. The latter sub-soil materials are unconsolidated and are rapidly eroded, particularly on the steep slopes of the eolian dunes and other ridges. The eolian dune areas are considered very sensitive to development and recreational use.

CAMPGROUND AREA: The forest stands in the heavily-used portions of the park's day-use and campsite areas are the most sensitive forest features and are victims of an increasing amount of vandalism, soil compaction and erosion around the roots each year. Forest management will be necessary to restore and maintain a healthy and aesthetically-pleasing forest cover in these areas.

The park land base on the other hand is suitable for moderate forms of development. Rolling sandy topography facilitates road and building construction and sewage disposal especially if proper measures are taken to prevent erosion (notably gullying and blowouts) Soil conditions, however, are very fragile, particularly in campsite areas where soil compaction can be so severe as to necessitate campsite rotation.

Although park user figures reflect park use over a 93-day

season, it should be noted that the heaviest use is condensed into the 62-day July-August period. It is during this 62-day period that both the land and water base are subject to the greatest impact. In order to alleviate the problems of the existing campsites and to meet an anticipated demand for camping facilities in the park, another campground may be necessary.

FAUNAL RESOURCES: The cold water trout fishery in the park is not self-sustaining. It is maintained on a "put and take" basis. Overuse of the cold water lakes could cause a water quality deterioration which would negatively affect the fishery. Self-sustaining warm water fisheries in the park such as northern pike and yellow perch are much less sensitive.

7.2 SIGNIFICANT FLORAL FEATURES

The primary significance of the vegetation lies in its representative values. The nature reserve system for life science features, as outlined in the proposed administrative policies for the Ontario Provincial Park System, is based on the distribution and description of broad vegetative habitats within each of the province's 8 site regions as identified by G. A. Hills (1959). Utilizing Hills' site region concept and incorporating the general elements which make up a site (i.e. soil moisture, substrate and micro-climate), P. F. Maycock (1976) postulated that a maximum of 150 vegetative habitats could theoretically exist within each of Hills' 8 site regions. Maycock illustrated these sites in a 150 cell matrix. Esker Lakes is situated in Site Region 3E and has significant representation for at least 6 of the possible 150 vegetation communities in Site Region 3E (Figure 11). Basically,

the park area is representative of the three broad types of temperature regimes: colder-than-normal; normal; warmer-than-normal. The colder site type is represented in the park by both the Columbus Lake Bog and East-Central Bog and Dune Complex, the normal site type by the dunes which have white pine and jack pine complexes, and the warmer-than-normal by the old mixed forest complex (Figure 12).

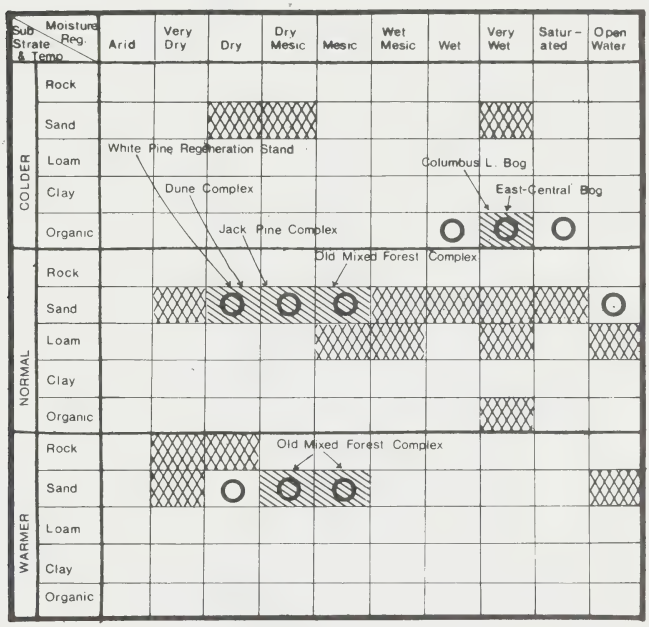
The park also has significant representation of the wet-to-saturated, colder-than-normal, organic substrate site type (bogs). This feature is more representative of the Boreal Forest than of the region. The bogs in the study area are, however, of interest because of their general maturity and because it is believed that in many of the areas the bogs have not been subject to much water level fluctuation. In addition, the importance is increased by the association of the bogs with fossil eolian features such as dunes. Described below are the most significant floral communities found in Esker Lakes.

OLD MIXED FOREST COMPLEX: This area contains the oldest upland forest stands in the park. It is significant as a relatively undisturbed example of fire-succession on this site type in a comparatively late successional state. It also contains pre-fire relics and numerous specimens of red maple. It is provincially significant for its scientific, interpretive and educational values as an illustration of succession.

EAST-CENTRAL BOG AND DUNE COMPLEX: This area contains the range of association typical of a very mature basin bog. It also contains significant floating bog areas around Little Esker Lake and numerous lagg zone sites. The value is increased by the presence

in the bog of numerous parabolic dunes, some of which support stands of jack pine which are among the oldest in the study area. The combination of this high quality, mature and undisturbed bog complex and the fossil dune complex is not represented elsewhere in the park system and difficult to replace elsewhere in the region. Therefore, this site is of provincial significance (Perraton, 1975).

Figure 11 General Extent of Floral Representation in the Park



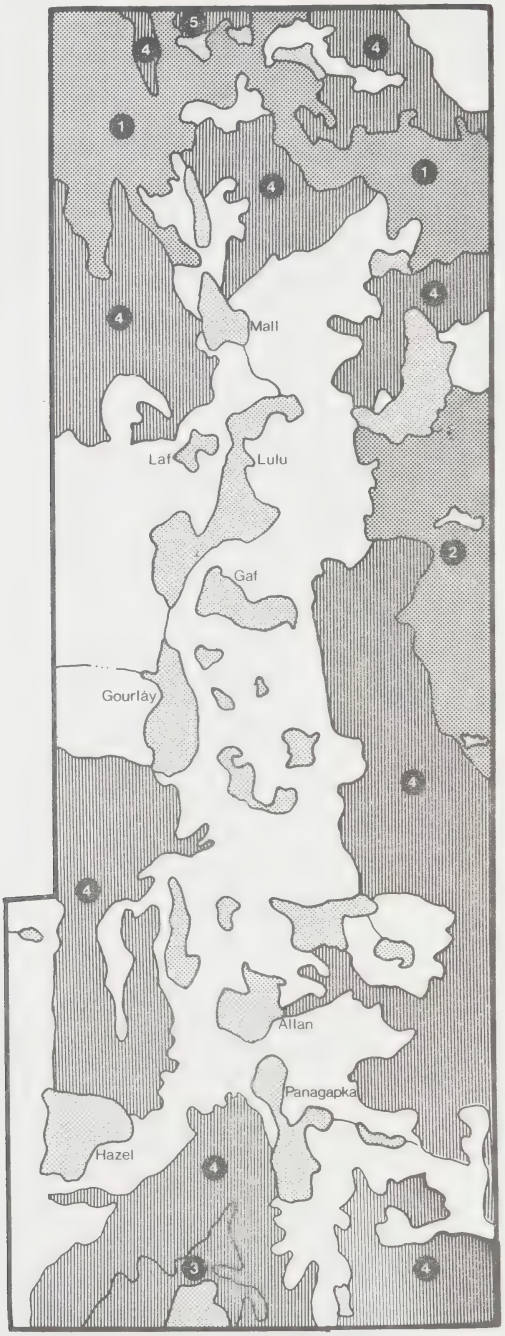
Source: Maycock matrix

Significant Representation of Site Region 3E

Some Representation of Site Region 3E

Minor Occurrence of Site Region 3E

Significant Botanical Areas



COLUMBUS LAKE BOG: This represents a very mature, well-developed peatland. It is especially notable for its well-developed lagg zone communities along the north edge and for its incipient pattern bog development south of Columbus Lake. This site is an exceptionally high quality representative of a very important feature of the Boreal Forest. Therefore, it is classed as regionally important.

JACK PINE COMPLEX: This is the most extensive area of significance in the park. The complex as a whole represents a diverse range of site, age, history and successional development which would be difficult to match in one area anywhere else. For example, neither the stands at Nagagamisis Provincial Park nor the stands at The Shoals Provincial Park approach the Esker Lakes complex in this respect. This site is also of regional significance (Perraton, 1975).

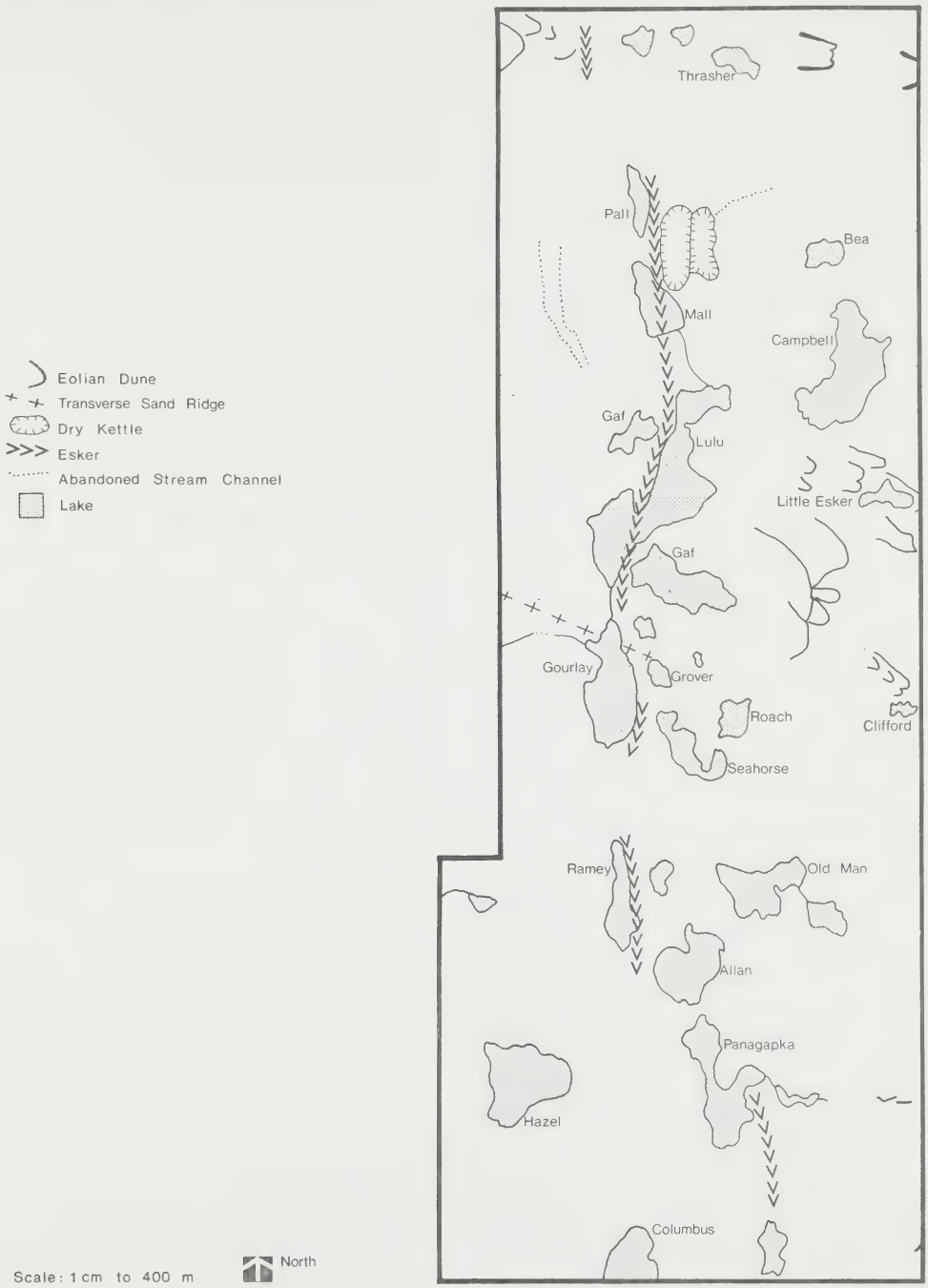
WHITE PINE REGENERATION STAND: This is a small site on the north shore of Tuke Lake which is significant because it represents white pine reproducing from a seed under a young jack pine stand and whose seed source is to the south and west of Tuke Lake. The site is of substantial interest because it suggests a mechanism whereby remnant groves of white pine can expand and re-occupy areas from which the species was previously excluded as a result of excessively severe fires. As such, it is of regional interpretive and, perhaps, considerable scientific value and one of the park's notable features. Its value is due to a unique characteristic rather than to its representative nature.

7.3 Significant Geomorphological Features

The nature reserve system for earth science features is based on the identification and preservation of features which best represent the geological and geomorphological history of Ontario as determined by the 37 geological regions (Stockwell, 1964 and Dreimanis and Karrow, 1972). Esker Lakes contains several geological features of regional, provincial and perhaps even international significance (Figure 13).

The Munro Esker: The Munro Esker is an internationally renowned glaciofluvial landform because of its unusual size and construction, and its probable genetic relationship to the underlying bedrock topography of the Hudson Bay Paleolineament (Frey, 1977). Part of its notoriety is also due to several studies of its various sedimentary features. The Munro Esker, for the most part, is the park, both topographically and in its physical make-up. Because of its physical dimension and its complicated, braided morphologies it is difficult to fully perceive at ground level (Frey, 1977). Its value as the most prominent feature in the park is easier to appreciate by examining the esker system in its entirety from the air. Consequently then, Esker Lakes achieves Provincial significance by preserving a representative portion of the 249-km long Munro Esker. Of added importance is the negligible amount of human disturbance to the esker system within the park and the absence of aggregate mining. The continued preservation of this portion of the Munro Esker and its associated features is a valuable asset to the provincial nature reserve system.

Significant Geomorphological Features



(Source: Frey 1975)

DUNE COMPLEXES: The dune complexes within the park are representative of the effects of postglacial wind on the unvegetated sands of the esker and the sediments deposited during the glacial Lake Barlow-Ojibway. They provide a valuable record of postglacial climatic conditions. In particular, the dune complex east of Gaf Lake provides an excellent site for studying postglacial plant colonization in close proximity to the height of land. Other research possibilities include searching for organic matter buried by the dunes in order to uncover radiometrically-datable material which could more accurately establish a chronology of postglacial events. The dune complexes are of regional significance and represent the only dunes presently protected within Northern Region's parks system.

BOGS: The small, isolated bogs in the park provide typically representative postglacial vegetational patterns. Their association with the eolian dunes adds a unique element to their interpretation because they are the only bogs in Northern Region's parks system with such an interrelationship. They are also of high scientific value as sources to accurately describe, through their pollen record, early postglacial plant colonization adjacent to the height of land and as a potential source of radiocarbon-datable organic material for accurate determination of both the drainage history of Lake Barlow-Ojibway and the history of dune migration.

7.4 Environmental Planning Issues

LAKE MANAGEMENT: The capacity of Panagapka Lake has been identified as 500 user-days per hectare per year or approximately

26,500 user-days per year. This capacity is the maximum park use the lake can sustain without deterioration of its water quality (Appendix 2).

In this regard, a problem occurs when one takes the accumulative total of user-days which can be provided by the existing facilities. Over the 62-day July-August season the Panagapka Lake campground can accommodate 20,336 camper-days; the day-use area 9,796 day-user days. Over a complete 93-day season these same areas can provide 30,504 camper-days and 14,699 day-user days respectively. The 62-day July-August season represents the period of heaviest use. In either case, the maximum allowable capacity for Panagapka Lake is exceeded. The 62-day season exceeded the allowable capacity by 3,632 camper-days; the 93-day season by 18,703.

ACCESS ROAD: Calcium and other petrochemical liquids applied to this road during summer months to control dust problems could be causing environmental damage to adjacent trout streams.

ACOUSTICS: Electricity is used only in the maintenance area and staff quarters. The park receives its supply of electricity from two diesel generators which create a noise problem in the park. In addition to the noise problem, the generators also emit disagreeable fumes.

BLACK BEAR: Traditionally, the black bear has posed some problems as it is attracted to the park for the food brought by campers. In 1972, a system of live capture and removal using culvert traps and Aldrich Leg Hold snares were instituted. A total of 27 bears were removed that year principally from the park dump.

This procedure allows for the collection of valuable biological data on the black bear while also alleviating a nuisance problem. There has only been one recording of a nuisance black bear returning which suggests this is a good method.

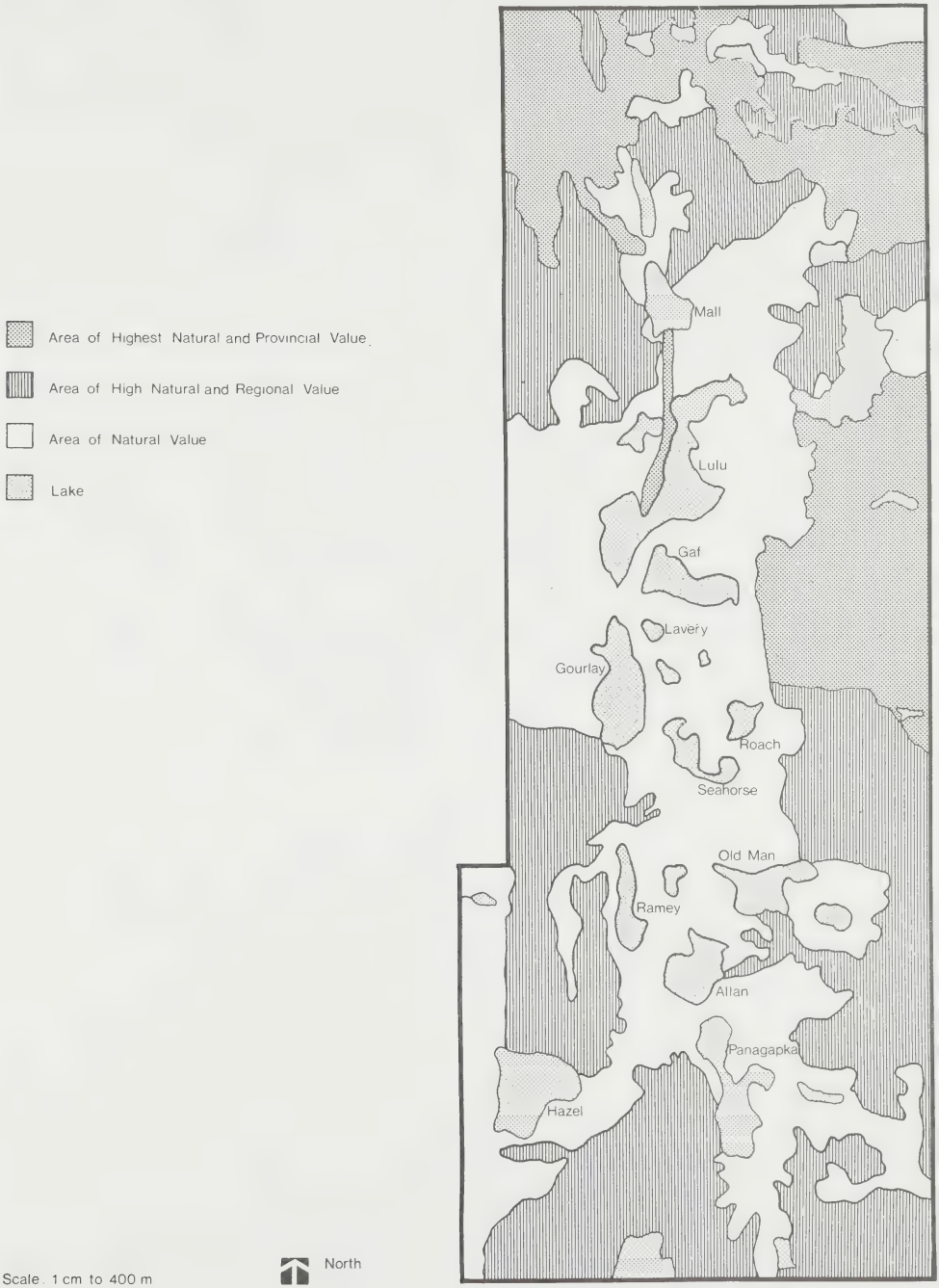
7.5 Environmental Carrying Capacity

Optimum resource capacities must be identified for Esker Lakes which ensure protection of the existing high resource qualities and recreational experiences. An optimum resource capacity must be identified for camping, day-use, the interior esker lakes system and hiking. However, before these capacities can be calculated, sensitive and natural value areas must be separated from those areas displaying development potential.

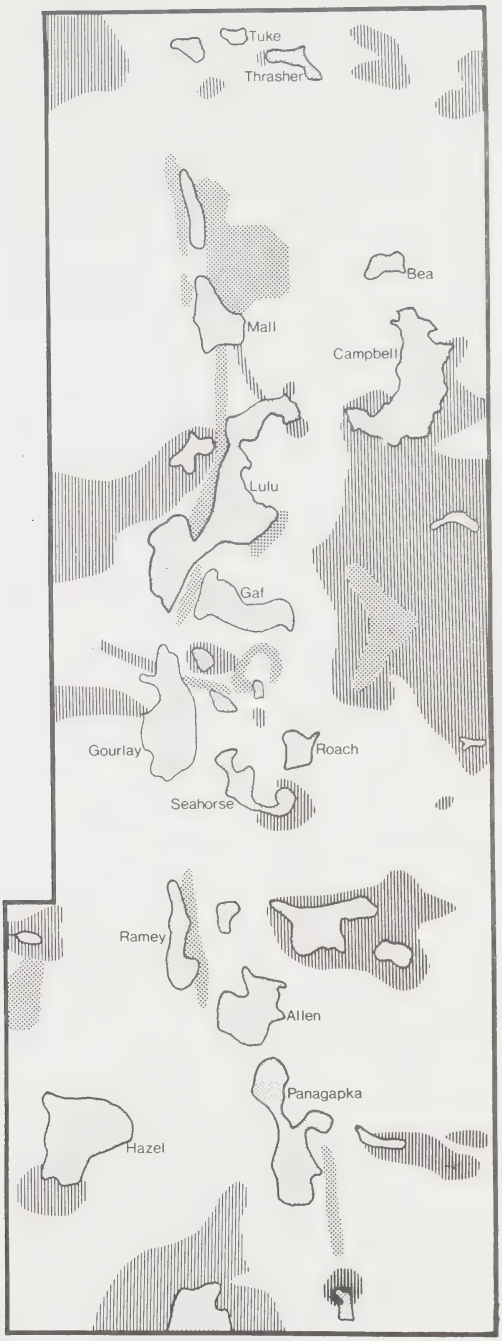
Figure 14 identifies areas of highest natural and provincial value, high natural and regional value and natural value. Areas of highest natural value qualify as candidate nature reserves for the provincial nature reserve system. They include the east-central bog and dune complex and the old mixed forest complex and a representative portion of the Munro Esker. Five areas of high natural value include the jack pine complex, the white pine regeneration stand, the Columbus Lake bog and two dry kettle lakes. Most of the remaining park area which is classed as natural value area, is considered to contain several sensitive features. For instance, contained within this area, are 18 of the 28 lakes found in the park.

Lithological Constraints: Figure 15 identifies lithological and morphological constraints to development. The fine to coarse gravelly sand that composes more than three-quarters of the park's

Natural Areas



Lithological and Morphological Development Constraints



Lithological and/or Drainage

Excessive or Unstable Slopes

Lake

Scale 1 cm to 400 m

North

land surface is well drained and would provide a suitable base for most construction purposes. Any excavation in these materials is likely to encounter large erratics, either separate or in clusters, whose size could impose unexpected costs and delays of a project. The abrupt vertical and horizontal changes in dominant sediment grain size that characterize most of the esker complex create the need for site-specific sub-surface evaluations in any area of proposed development. Such testing could be in the form of deep augering, mechanical excavation or overburden drilling.

Lithologies unsuitable for development include the very fine, well-sorted eolian sands, concentrated in the dune areas and the saturated organic terrain of the bogs. The dune sands have very unstable slopes when their thin soil cover is removed and construction excavation would require extensive support and importing coarser aggregate to the site. The organic areas are often deep and their high moisture content creates an unpredictable and difficult medium for construction activities.

MORPHOLOGICAL CONSTRAINTS: Steeply sloping surfaces are confined to the central esker ridge, adjacent kettle lake basins and the eolian dunes. None of these areas can sustain extensive removal of the soil cover without rapidly deteriorating into uncontrollable gully development. Even trail development must be monitored carefully to evaluate its effect on erosion. The water-facing slopes of the esker and kettles require particular maintenance to ensure the preservation of the high quality of the lakes in the park.

Figure 15 also identified those areas best suited for development because (1) they contain no sensitive park features and (2) they are in close proximity to existing development. Only one area was

identified as having the latter traits. This was an area extending from the existing development to just west of Hazel Lake.

Within this area is Panagapka Lake which can, without environmental degradation, annually support 26,500 user-days. At the 1977 rate of use (16,358 camper-days and 2,315 day-user days) both the land and water resources around Panagapka Lake are nearing optimum capacity. Day-use facilities on Panagapka Lake can provide a maximum of 9,796 user-days (July-August). However, present July-August day-use seldom exceeds 3,400 user-days and is not expected to increase appreciably for several years based on past trends and on the availability of several alternate bathing beaches close to Kirkland Lake. If 4,000 user-days is set as the optimum annual day-use capacity for Panagapka Lake, then it would follow that 22,500 camper-days would be the optimum annual use capacity of the Panagapka Lake campground, assuming that all 22,500 camper-days would influence the lake in some manner. As soon as visitation increases sufficiently to utilize the 1977 surplus of 6,142 camper-days, campground expansion is required. It is estimated that the land base around Hazel Lake could support 124 campsites or an optimum of 27,528 camper-days without environmental degradation. Overall, the optimum number of camper-days which Esker Lakes Provincial Park can support annually is 50,028 over a 93-day season which represents the optimum camper-day capacities of Panagapka campground (22,500 camper-days) and the potential Hazel Lake campground (27,528 camper-days).

The interior lake system is one of the most sensitive recreation resources in the park. Its ephemeral lakes are sensitive to water quality deterioration; its trout fisheries are sensitive to overuse. As a result, an environmental capacity must be identified which neither compromises the existing resource quality nor compromises quality user-experiences. The primary users of this system are fishermen, canoeists and campers. Canoeing and camping use are heaviest during the summer park season while fishing is heaviest during spring, fall and winter months.

At present, the lake system annually supplies 500 user-days of spring, fall and winter fishing, 300 user-days of interior camping and 550 user-days of canoeing for a total of 1,350 user-days. Given the existing level of development, the annual user-day potential of the system is 1,500 user-days of canoeing, 1,000 camper-days and 4,000 user-days fishing for a total of 6,500 user-days*. On the basis of resource capabilities, the optimum level of camper-use would be 1,500, canoeing-use 2,000 and fishing would remain the same for a total of 7,500 user-days. The 4,000 user-day capacity for spring, fall and winter fishing use represents the level of use resource specialists feel the lakes can annually sustain. Overall, the maximum resource use of the interior lake system is 7,500 user-days.

During 1977, 1,848 user-days were consumed by campers hiking the 32.6 km of trails in the park. The optimum user-day potential of the trails is 4,350*. A potential exists to develop an additional 11 km of hiking trail, resulting in an additional 825 user-days of hiking in the park. Optimum use of the 42.6 km of potential trail system would be 5,175 user-days annually.

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* Capacity formulas for canoeing, interior camper-days, fishing and hiking are given in the Ontario Ministry of Natural Resources publication entitled Ontario Provincial Parks Landscape Design Principles and Guideline, Division of Parks, 1977.

8.0 PARK POLICY

The following policy statements provide direction for the preservation, management and development of park resources.

8.1 Park Goal

To provide within a natural environment setting year-round opportunities of recreational, educational and scientific significance.

8.2 Park Objectives

Destination Camping: To annually provide 50,028 camper-days of opportunity for provincial and non-resident use while preserving natural conditions in the park.

Day-Use: To provide 11,500 user-days of year-round day-use while preserving natural conditions in the park.

Extensive Recreation: To provide 2,000, 1,500 and 5,175 user-days of canoeing, interior camping and hiking respectively within a quality natural setting.

Resource Management: To perpetuate the existing quality of the park's resources through wise management.

DEVELOPMENT: To construct sufficient park facilities and to support the quality and quantity of opportunities to be provided while maintaining the park's existing environmental quality.

VISITOR SERVICES: To provide personnel, programs, media and facilities to aid park visitors in recognizing, using and enjoying the full recreational, interpretive and educational potential of Esker Lakes Provincial Park.

8.3 PARK NAME AND CLASSIFICATION

Both the topographical features and the botanical communities in Esker Lakes Provincial Park owe their characteristics and variety to the park's location on the Munro Esker. Appropriately, in 1957, Esker Lakes Provincial Park was named after the chain of kettle lakes which longitudinally straddle this esker.

In 1967, Esker Lakes was designated as a natural environment park according to the Ontario Provincial Parks Classification System. This classification is ideal for Esker Lakes and is being retained because of the variety of its physical and biotic features, and the interpretability and close interrelationships between these features.

All of the policies adherent to this classification have been adopted into the plan and will be implemented in future park development management and operation.

9.0 MANAGEMENT POLICIES

The following management policies are required in order to achieve the park objectives.

9.1 Fish and Wildlife

HUNTING: Hunting will not be permitted in the park.

WILDLIFE MANAGEMENT: Where possible, wildlife management practices will be pursued to provide wildlife viewing opportunities. Stocking of game will not be permitted and wildlife specimens may be taken for scientific purposes only under written authority of the Ministry of Natural Resources.

FISHING: The present fisheries management plan, revised in 1972, will be reviewed every five years. Due to the importance of the park fisheries unit to the District's brook trout fishery, and in order to supply park visitors with a variety of fishing experiences, the present "put and take" program will be continued. The use of live bait fish will continue to be prohibited to prevent the introduction of undesirable species into the park's lakes. To maintain trout fisheries, it will be necessary to periodically reclaim lakes, do selective netting and construct spawning beds.

TRAPPING: Esker Lakes Provincial Park will be deleted from registered Trapline K.L. 51 within one year after implementation of this plan. Nuisance animals will be live-trapped and transferred to other areas within the park or to designated areas outside the park. Where this is not feasible, nuisance animals will be dead-trapped under Ministry supervision.

INTERPRETIVE AND EDUCATIONAL PROGRAMS: Fish and wildlife interpretive programs will be prepared to explain to park visitors the purpose behind specific fish and wildlife management strategies. These interpretive programs will constitute but one component of the total package of park interpretive programs.

9.2 VEGETATION MANAGEMENT

HARVESTING: There will be no harvesting of timber within the park except for aesthetic, safety or therapeutic reasons. Therapeutic cutting may be necessary to eliminate a disease or a pathogen infestation. Seed cone collection must have prior approval from the District Manager, Ministry of Natural Resources.

PLANTING: Planting of native tree species will be continued under the present 10-year plan in only the developed areas of the park. No manipulation of other plant communities will be carried out except to prevent erosion and windfalls, to rehabilitate campsites or to landscape new facilities in the use areas. Plantings will be restricted to species common to the specific site being treated. The planting plan will be reviewed every five years so as to ensure maintenance of the best species for shade, buffering, erosion control and aesthetics.

FOREST INSECTS AND DISEASE: Aerial release spraying will not be allowed in the park. Pathogen spraying will not be permitted unless adjacent park areas are threatened by an insect or disease originating from within the park.

FIRE MANAGEMENT: Prescribed burning as a means of regeneration will not be permitted. Forest fires approaching and within the park will be extinguished.

9.3 LANDS

LAND MANAGEMENT: All lands within the park are now reserved under The Provincial Parks Act from disposition. Sub-surface or surficial extraction will not be permitted.

9.4 ENVIRONMENTAL QUALITY

BIOCIDES: Application of biocides except by individuals for their personal use at their respective campsite and except for lake reclamation is not permitted.

WASTE DISPOSAL: The Ministry of the Environment standards for waste disposal will apply.

WATER QUALITY: Weekly water tests will be carried out to ascertain variations in water quality for all the lakes in the developed area of the park.

AIR QUALITY: The existing diesel generating system will be replaced by hydro-electric facilities to eliminate present air and noise pollution.

9.5 Visitor Safety and Public Health

The Ministry of Natural Resources and Ministry of Health standards pertaining to visitor safety and health will be observed.

9.6 Other Management Guidelines

Handicapped Visitors: Recreational facilities will be developed in specific areas to accommodate handicapped visitors (e.g. reserved campsites adjacent to comfort stations, ramps to building entrances).

Edible Plants: Harvesting of edible plants and fruits as part of the visitor services program will be permitted.

Motorized Vehicles: Motorized vehicles of all types will be regulated and/or restricted to areas and zones compatible with their use. No motor-powered boats shall be used on park waters except for emergency aid or essential park functions by Ministry staff only.

10.0 ZONING

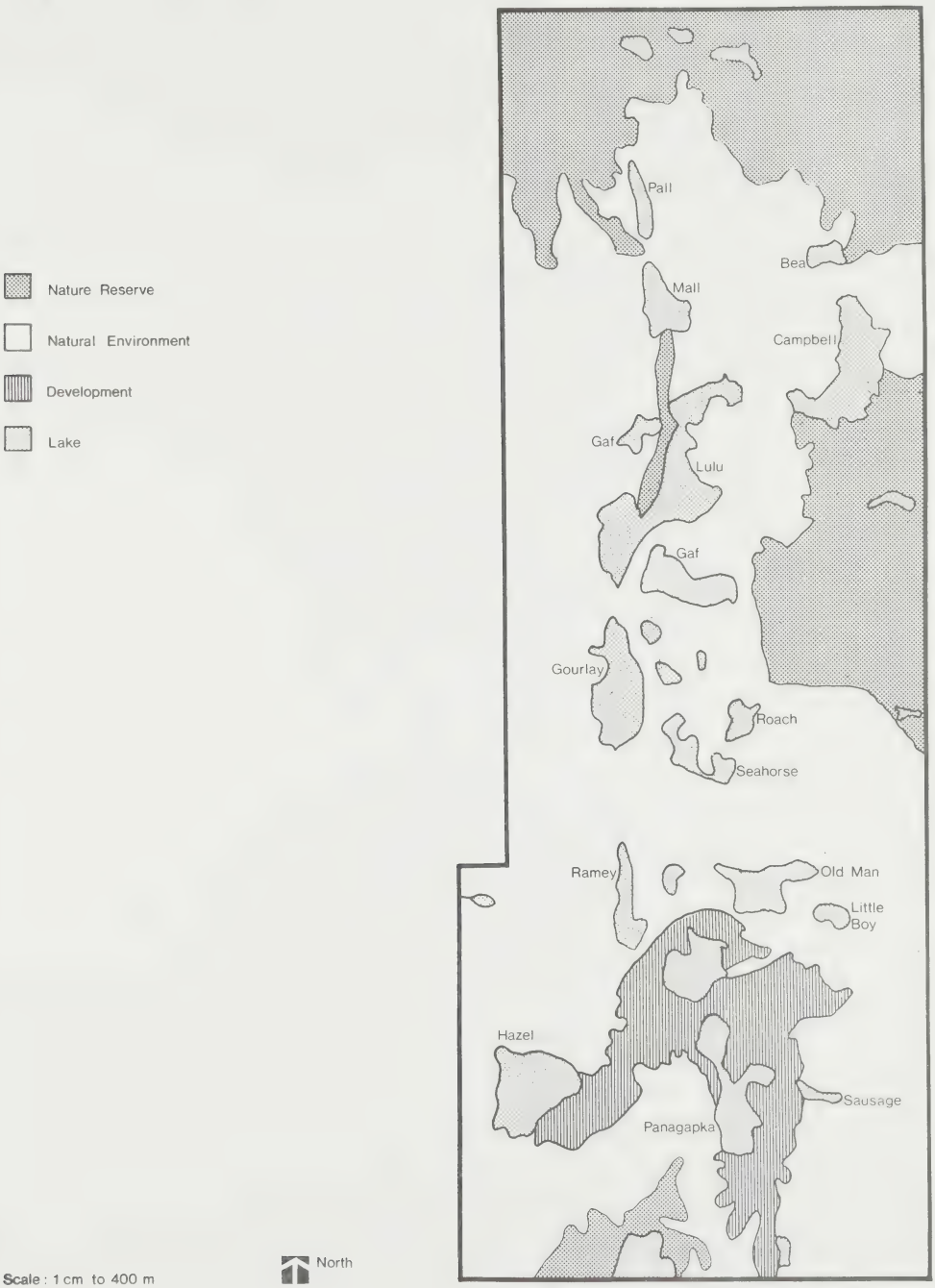
Six zoning possibilities exist for a natural environment park: nature reserve, wilderness, access, development, natural environment and historical. In Esker Lakes Provincial Park, the zone designations applied are the development zone, the natural environment zone and the nature reserve zone (Figure 16).

10.1 Nature Reserve Zone

Most of the features found in the zone are representative of some provincial or regional element of geomorphology or vegetation which is presently not sufficiently represented in the Northern Region's parks system and which is of sufficiently high quality that it would be very difficult to preserve equivalent areas in the region.

Four nature reserve zones have been delineated in Esker Lakes Provincial Park. The *old mixed forest* nature reserve occupies 475 ha in the most northern part of the park. Its boundaries roughly correspond to the limits of the old mixed forest and jack pine complexes. Three nature reserve components are found in this zone: the old mixed forest, the jack pine forest and a dune complex. Botanically, the old mixed forest is the most extensive and significant area in the park. Its importance lies in its diverse range of site, age, history and successional development (Perraton, 1975).

Zoning



Scale : 1 cm to 400 m

The *Munro Esker* nature reserve includes 1.4 km of the Munro Esker between the south end of Mall Lake to the bog southwest of Lulu Lake. This zone provides adequate representation of the beaded ridge morphology of the central esker. Beaded eskers are fairly common in the Northern Region and adjacent parts of Quebec, where they have been successfully used to document the successive position of the receding front of the continental glacier (Norman, 1938). They have not been recorded elsewhere in the park system south of the limit of the Late Wisconsin re-advance (the Driftwood Stadial, characterized by the Cochrane clay till) of continental glaciation. Until earth science inventory surveys have been completed for the parks of the Northern Region, the beaded esker morphology in Esker Lakes should be regarded as a significant component of the provincial nature reserve system.

The *Campbell Lake* nature reserve occupies a 288 ha area south of Campbell Lake. The boundaries of this zone follow the outer edge of the east-central bog and dune complex, the most important component within this zone. The dunes are the most valuable earth science feature the park can contribute to the provincial nature reserve system (Davidson and Tracey, 1976) because of the quality of their morphology and morphostratigraphic affiliation. Although similar dunes are present in many areas of the Northern Region, few have been left undisturbed or partially destroyed by logging, road construction or recent fires.

The *Columbus Lake* nature reserve occupies a 77 ha area around the part of Columbus Lake included in the park. The nature reserve component in this zone is the Columbus Lake bog.

These zones provide an excellent fulfillment of the resource

management and visitor services objectives through the protection of significant resource features for future research and educational purposes.

No forest extraction will be allowed within any of the reserves. No lake stocking or reclamation will be permitted in Stever, Tuke, Thrasher, Little Esker, Clifford and Columbus lakes.

Recreational uses consistent with this zone are hiking, viewing, photography and painting, whereas snowmobiling and other forms of mechanized travel are not. Travel through this zone will be by canoe or along hiking trails. Under emergency conditions, access by mechanical means may be necessary via the emergency fire exit road which skirts the western edge of the Campbell Lake nature reserve.

Non-destructive nature interpretation and scientific research will be encouraged. Scientific projects must be sanctioned by the Ministry of Natural Resources.

10.2 Natural Environment Zone

The natural environment zone has been delineated as 2,105 ha (Figure 16). This zone buffers the nature reserve zone from the development zone.

This zone contains 18 of the park's 28 lakes, 7 of which are trout lakes. Most of these lakes are extensively used in spring and fall by local fishermen. This zone provides good opportunities for backcountry travel, canoeing, hiking and fishing.

As in the nature reserve zone, forest extraction will not be allowed except to maintain aesthetics and vistas. Trout lakes will be stocked on a "put and take" basis in accordance with the park's fisheries management plan and may be reclaimed with use of chemicals approved by the Ministry of the Environment. Recreational activities

permitted in this zone include hiking, canoeing, interior camping, fishing, viewing, photography and cross-country skiing. Snowmobile use in the park is generally confined for access to interior lakes by local residents for ice fishing purposes. Camping indesignated areas will be restricted to stopovers on canoe or hiking excursions.

10.3 Development Zone

This is a 264 ha zone encompassing the existing developed and the potential developable areas of the park.

Day-use activities such as picnicking, swimming and field activities will be restricted to a designated area, while tent and trailer camping will be confined to designated campgrounds. Campground services will include drinking water, central garbage disposal areas and a central woodyard. No electrical outlets will be provided. Group camping will be available to groups approved by the Park superintendent. Some campsites will be designated and developed to accommodate handicapped visitors. Staff quarters, maintenance and utility buildings and a concession will be located in this zone. The concession will retail essential supplies to park visitors.

Forest extraction will be permitted so as to allow for the removal of hazardous trees. Lake reclamation and fish stocking will be permitted in Panagapka, Allan and Hazel lakes. Weekly water quality tests will be taken during peak-use periods to ensure against water degradation. These tests will be comparatively analyzed from year to year so as to detect any variations in water quality.

11.0 VISITOR/RESOURCE RELATIONSHIP

11.1 Visitor Services

To this point, the master plan has identified park resources - their sensitivity and significance - and made suggestions regarding their management. Visitors to Esker Lakes can experience these resources either on-site or vicariously. A visitor services program has been designed to help promote a user-resource relationship by communicating the park to the visitor. The visitor services goal for Esker Lakes Provincial Park, therefore, is to aid the people of Ontario and its visitors in obtaining optimum benefit and enjoyment from Esker Lakes.

Visitor services is composed of four components: information, interpretation, recreation and outdoor education. All four components are present to some degree in every provincial park. For Esker Lakes, the information program has a high potential, the interpretation and recreation programs have a moderate to high potential, and the outdoor education program has a moderate potential.

THEMES: Esker Lakes Provincial Park has a number of strong themes.

A Topical Organization of Ontario History indicates the importance of the Kirkland Lake gold camp theme (Segment 13) with an A rating under mining (Historical Sites Branch, 1976). Esker

Lakes Provincial Park is probably the closest park to a good mining area. A number of former operations are only a few kilometres away from the park boundary. An old access road to a former mining operation runs along the east side of the park. No other provincial park is as well located and classified to develop this high quality historical theme. In developing a theme, it will be possible to explore areas which have not already been interpreted by other agencies in Kirkland Lake.

Another related theme is the park's surficial geology: the story of the Munro Esker, the park's namesake, and other related features. Frey (1977) makes some excellent suggestions for the development of this theme in his most recent report.

Still another park theme which in the past has been modestly developed into an interpretive program is trapping. This theme will be re-evaluated once traditional trapping is phased out of the park.

The foregoing theme analysis has identified important resource stories from the park's numerous natural and cultural variables. The interpretive program and to some extent, the recreation and outdoor education programs, will attempt to translate these themes (and, thereby, the resources) into program experiences which should help the visitor to better understand and appreciate the park.

INTERPRETIVE PROGRAM: The objectives of the interpretive program are to offer interpretive opportunities to park visitors through self-use media and facilities and organized activities.

Interpretive opportunities for visitors include traditional organized activities such as guided hikes and evening programs. Recreational activities such as canoe and hiking trips will, in the future, employ a great deal of interpretation.

Self-use facilities such as trails, publications and displays offer visitors further interpretive opportunities. The information displays for the Lonesome Bog Trail interpret the significant and sensitive land and water resources in the park's interior under a dominant strong trapping theme.

Two trail guides are the only existing interpretive publications for Esker Lakes. Pamphlets to be prepared include a District canoe route brochure, a car tour brochure, a children's brochure and more trail guides for the trails. Interpretive leaflets covering such subjects as blackflies or poisonous mushrooms will be prepared.

Several audio-visual programs interpret subjects such as the park and people, moose, edible plants, "plants on your campsite" and park rules. Audio-visual programs to be developed will deal with fishing, biotic community relationships in the park, trapping, the geological and topographical history of the area and the history of mining, lumbering and settlement in the area.

The interpretive building will be a focal point for park interpretation to motivate visitors to explore the park. Displays will be an important interpretive component. They will be changed from season to season and during the summer to appeal to return visitors.

Two exhibit cases are available for "permanent" displays. In the near future, displays on the following will be developed:

- formation of eskers, kettle lakes, eolian dunes, etc.;
- natural history of park plants and animals;
- life of Betsy Brazzeau, a native trapper;
- trapping methods and fur samples;
- history of local mines, for example Anoki, Queenston, Bidgood, and Iris;

- fishing;
- canoe types; and
- how the lakes were named.

Interpretive facilities and media should be used appropriately to tell the stories which flow from the theme analysis for the park.

RECREATION PROGRAM: The objective of the recreation program is to provide recreational facilities and activities which relate strongly to the park's resources and capabilities and its interpretive plan.

Esker Lakes is justifiably a natural environment park; however, its landscape offers some of the best natural features of any Northern Region park for two important recreation skills programs: backpacking and canoeing. The lakes at Esker Lakes are small and protected with only short portages separating most. A short, interesting loop is available within the park, while a longer, more challenging route through some very scenic country can be started nearby. These natural attributes provide a situation which is ideally safe for canoe tripping instruction and for the novice visitor's first solo trip.

The same case can be made for backpacking. The "clean", well-drained, lake-studded birch and jack pine stands are safe and interesting to walk through. Hikers have a variety of routes to choose from as far as distance is concerned. Everything considered, no other Northern Region park is so well suited to a backpacking skills program as Esker Lakes.

It is foreseen for at least the next few years, that the emphasis will be on canoeing and hiking skills. Because Esker Lakes has such a high percentage of repeat visitors, the recreation program must be

diverse. Therefore, the canoeing program will offer sessions on basic canoe skills, portaging, canoe repair, canoe safety, canoe building and so forth. All organized recreation activities must provide the visitor with an experience which significantly adds to one's personal involvement with the park.

A rock-hounding skills program would be an interesting adjunct to the development of the gold mining theme. Good rock-hounding possibilities are available a short distance outside of the park. Agreements with nearby mining companies could be negotiated so that rock-hounders could have access to the good pickings at rock dumps and on staked land. In addition, hand panning demonstrations within the park at some of the better sites as suggested by Frey (1977), would tie in appropriately with the gold mining -- rock-hounding relationship.

OUTDOOR EDUCATION PROGRAM: The objective of this program is to help educational groups make optimum use of the park as it pertains to their outdoor studies.

There is a small but growing need in communities in the Kirkland Lake area for direction concerning outdoor education. There is as yet no firm policy concerning the involvement of the Ministry of Natural Resources in this field.

At present, the park visitor services program will assist teachers in the following ways:

1) by providing resource information;
2) by providing guidance when planning field trips;
3) by occasionally participating on field trips as resource specialists; and
4) by occasional lectures and audio-visual presentations at local schools.

INFORMATION PROGRAM: Two objectives of the information program are to inform park visitors about park and nearby area resources, facilities, services, programs and regulations, and to provide necessary information to the local communities and mass media.

The communication program consists of publications, word of mouth, signs and exhibit panels, audio-visual presentations, and personal contact (between visitors and park staff). The park leaflet contains basic information concerning park resources, facilities, services and programs. It is distributed from Ministry of Natural Resources District offices, some other provincial parks in the Northern Region, local Chambers of Commerce, tourist information booths and the park gatehouse. Other pertinent information may be obtained from supplementary information publications distributed at various points in the park. A park newsletter concerning current events and activities in the park is produced at intervals during the visitor season.

Several audio-visual presentations inform visitors of park rules, proper camping practices and so forth.

Prime contact points for information dissemination will be the park gatehouse and the recreation building. When the park gatehouse is closed, a panel structure containing the park map, a bulletin board and park leaflet dispenser are available to assist the visitor. At the recreation building, the visitor can receive information concerning the park and the surrounding area in greater detail than is possible at the park gatehouse. Audio-visual programs may be used here.

At trail entrances and boat launching areas, the visitor is informed about and oriented to the resource or facility. To further assist park visitors, signs, panel structures and register boxes

will be located at these sites. Similarly, signs and portable bulletin boards explaining park rules and indicating the location, type and time of park activities will be displayed at the concession, comfort stations, beaches, parking lots or elsewhere as required.

12.0 DEVELOPMENT

For most parks in the Northern Region, alternate development concepts can be prepared which reflect varying potentials for recreation development. Occasionally, however, in the older, more developed parks, such as Esker Lakes, only one development program is feasible. Environmental capacities and constraints have been taken into consideration for all proposed development.

12.1 Campground

Camper-day use of Panagapka Lake is fast reaching its optimum level of 22,500 camper-days. Once the optimum use of Panagapka Lake has been reached, campground construction at Hazel Lake is planned. Two phases of development are seen. The first phase would consist of 40 sites, a pressurized water system, a road system and a camper's beach. The second phase would be initiated according to demand and would consist of an additional 84 sites and a combination comfort station and shower building. This would provide a total of 260 campsites or 50,028 camper-days in the park, which is considered to be its optimum capacity. With the increase of 124 sites, an additional 27,528 camper-days would be provided.

12.2 Day-use Area

Day-use visitation has remained relatively stable for the past 12 years. Because the major emphasis for Esker Lakes is low intensity recreation use, no further expansion of the day-use area is foreseen. Further, it is not desirable to increase the swimming area because,

on Panagapka Lake, the number of user-days which remain to be utilized is limited and the lake serves as the main water supply.

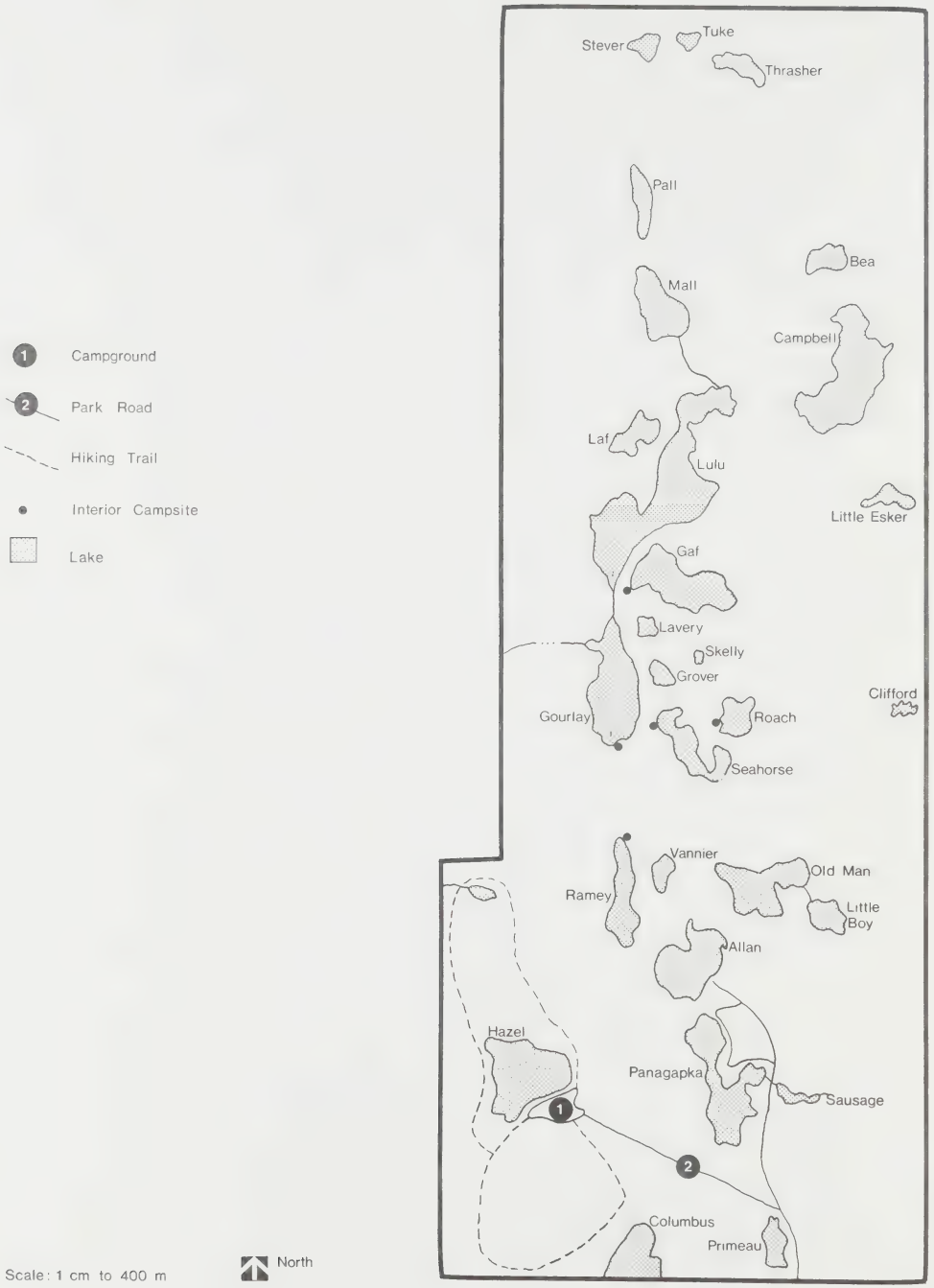
12.3 Backcountry Recreational Facilities

Backcountry recreational activities such as hiking, fishing and canoeing, play an important role in the recreational experience of most visitors to the park. These opportunities are considered part of the total park experience; therefore, an interior camping permit is not necessary. Most of the park is accessible by the present trail system with one other 11 km trail which will be developed to serve the proposed campground at Hazel Lake. Once developed, this trail will provide an additional 825 user-days of opportunity. Ten stopover campsites are now available on the interior lakes; a maximum of 15 is proposed. The five additional sites will be restricted and developed in the natural environment zone (Figure 17).

12.4 Winter Facilities

Winter use presently consists mainly of ice fishing and some snowmobiling. At this time, there is no demand for additional facilities or activities. Snowmobiling is permitted on unploughed roads and portages in the development and natural environment zones only. No official snowmobile trails are planned for the park even though the Kirkland Lake Motorized Toboggan Club use, on occasion, the access road and the emergency exit road. No cross-country skiing or snowshoeing trails will be developed until the access road is ploughed during winter months.

Future Park Development



12.5 Access Road

The present granular base on the access road will be replaced by an asphalt surface to overcome dust and washboard problems. The existing access road will remain the only point of public access. Road closures may be necessary, especially in spring, for road maintenance purposes. Once paved, the access road will provide excellent cycling opportunities to park patrons.

12.6 Visitor Services

A recreation building will be completed during the 1978 - 79 season. This facility will serve as a multipurpose interpretation centre. It will also serve as a facility for indoor programs during inclement weather, but it is not meant as a replacement for the present amphitheatre. Equipment and displays for the interpretive building and the park in general are required. These include 2 exhibit cases, 4 signs, 8 new audio-visual slide shows and 4 new pamphlets.

Other signs and panel structures will be required upon completion of the Hazel Lake campground.

12.7 Development Phases

Three phases of development are scheduled for Esker Lakes Provincial Park. Phase I will entail the upgrading of existing facilities and services. Phase II will consist of initial campground development at Hazel Lake while Phase III will concentrate solely on the completion of the Hazel Lake development (Table 6).

TABLE 6

Phasing of Development

PHASE I PARK FACILITY AND SERVICES UPGRADING

Annual Campsite Rehabilitation	
Recreation Building	
Paving of Access Road	17 km of road
Underground Hydro Transmission Line	16 km
Telephone Line	18 km
Interpretive Equipment and Displays	exhibit cases, signs A/V shows, pamphlets

PHASE II HAZEL LAKE CAMPGROUND EXPANSION

Internal Roads	- to construct 3.6 km of internal roads
Electrical Transmission Line	- to construct 1.6 km of transmission line
Campsite Units	- to develop 40 camping units
Pressurized Water System	- to install a pressurized water system
Vault Privies	- to install 4 vaults
Swimming Beach	- to construct a 232 m^2 beach
Parking Area	- to develop a 20-car parking lot
Dock	- to construct 1 dock
Comfort Station	- Type 9
Change Houses	- to construct 2 change houses for beach

PHASE III COMPLETION OF HAZEL LAKE DEVELOPMENT

Internal Roads	- to construct 2 km of internal roads
Campsites	- to develop 84 units
Entrance Control Booth	
Vault Privies	- 4
Park Areas	- to accommodate 30 additional cars
Natural Trails	- to construct 11 km of trail
Panel Structure at Entrance to Park Interior Trail System	

13.0 PARK OPERATIONS AND MANAGEMENT

13.1 Staffing

All park staff members must be knowledgeable of the park goal and objectives particularly as they relate to the management of the park's resources. Similarly, park staff must be trained to carry out resource management strategies as outlined in this plan. The existing staff structure in Esker Lakes Provincial Park is:

Position	Classification	Status
Park Superintendent	R.T.S. 1	complement
Assistant Park Superintendent	R.T. 3	seasonal
Maintenance Foreman	R.T. 2	seasonal
2 Maintenance Technicians	R.T. 1	seasonal
1 Park Worker	Manual Worker	seasonal
2 Gate Attendants	Clerk 2 General	seasonal
1 Security Officer	Sec. Off. I	seasonal
1 Visitor Services Programmer	R.T. 3	seasonal
1 Visitor Services Technician	Experience Program	seasonal

In order to attain park objectives, the following staff structure is recommended:

Position	Classification	Status	Phase
Park Superintendent	R.T.S. 1	complement	I
Assistant Park Superintendent	R.T. 3	complement	II

Position	Classification	Status	Phase
Maintenance Foreman	R.T. 2	complement	II
Visitor Services Programmer	Bio. 2a	complement	III
Visitor Services Attendant	Student	seasonal	III
4 Maintenance Technicians	R.T. 1	seasonal	II
2 Park Workers	Manual Worker	seasonal	II
4 Gate Attendants	Clerk 2 General	seasonal	II
1 Clerk	Clerk 2 General	seasonal	II
1 Security Officer	Sec. Off. 2	seasonal	II
2 Security Officers	Sec. Off. 1	seasonal	III

PARK SUPERINTENDENT: A park superintendent's primary responsibilities are to supervise operations, management and development of the park's resources according to the park master plan and to ensure that the park objectives are attained through staff awareness of management guidelines and proper staff training.

ASSISTANT PARK SUPERINTENDENT: The assistant park superintendent will assist the park superintendent in the operations, management and development of park resources and implementation of the plan.

MAINTENANCE FOREMAN: The maintenance foreman will supervise operational maintenance and assist in improvement and development projects under the direction of the superintendent and assistant superintendent.

VISITOR SERVICES PROGRAMMER: The visitor services programmer will organize and carry out a visitor services program under the

supervision of the superintendent that is in accordance with the park's visitor services and master plans.

13.2 Park Services

WATER SUPPLY: Esker Lakes' primary water source is Panagapka Lake. Water quality standards and user-capacities have been identified for the lake so as to maintain existing water quality levels.

ELECTRICITY: Two generators provide power for the park maintenance and staff buildings. No electrical outlets are supplied to park visitors. Although no electrical outlets are planned, a hydro transmission line will be extended 16 km into the park to replace the existing generator system. All hydro transmission lines will be buried underground.

TELEPHONE: At present, no telephone service exists in the park. Plans exist to install a public telephone at or close by the concession building. All telephone wires will be located underground.

FIRE PROTECTION: Forest fire occurrences are quite frequent in the north particularly during the spring and summer months. Because there are no towns in close proximity to Esker Lakes, no municipal facilities or fire equipment are available. As a result, the Kirkland Lake District Office is responsible for fire situations in Esker Lakes and on the Crown land surrounding the park. In the event of a fire blocking the park entrance, an emergency exit road cuts north through the park to a logging access road. Park staff

are trained to advise and, if necessary, evacuate park visitors from the park by the emergency route should the situation occur.

EMERGENCY SERVICES: An emergency plan has been prepared for park staff so they will be prepared for any emergency situations which may arise. All park staff will be familiar with the contents of this plan.

SANITARY FACILITIES: The Ministry of Natural Resources' and the Ministry of Health's standards regarding public health and safety will be followed. Central garbage disposal areas have been developed.

ROWDYISM AND VANDALISM CONTROL: Problems with rowdyism and vandalism are minimal at this time and control programs stress education and public contact by all staff. Enforcement will be carried out as required by designated park wardens supplemented by off-duty conservation officers and backed up, in difficult situations, by the Kirkland Lake detachment of the Ontario Provincial Police who are in 24-hour radio contact with the park.

13.3 PARK OPERATING PLAN

A park operations plan is presently being prepared. It will contain more detailed financial management and park maintenance requirements.

14.0 PLAN IMPLEMENTATION

14.1 Monitoring

A review of this plan will take place every five years after implementation. Data collection and assessment will be required annually so as to detect environmental trends which might occur from overuse of a resource. Staff members will be trained to carry out data collection and assessment. Audits will be periodically carried out to plot the progress of development as it relates to visitor use. Similarly visitor activities and preferences will also be monitored.

14.2 Land Acquisition

The right-of-way through the thirteen patented mining claims which straddle the park access road (Figure 4) should be obtained in order to ensure proper right of access to the park. The estimated cost of acquisition is unknown.

In addition, the 1976 Hazel Lake extension should be removed from the Abitibi Power and Paper Company licence which overlaps it.

15.0 MANAGEMENT PLANS

The following management plans are intended to provide greater detail and insight into management goals, objectives and guidelines for specific park resources.

15.1 Fisheries Management Plan

GOAL: To provide angling opportunities on a continuing basis which will contribute to a quality outdoor recreational experience for visitors to Esker Lakes Provincial Park.

Due to the geographical location, the surrounding landform and water quality, the lakes in the park are ideally suited to brook trout management. The scarcity of brook trout habitat within the District makes this an area of prime importance in the District sport fishery. An overriding objective must be to maintain the forms of angling elsewhere only as a means of diverting angling pressure from brook trout and only in waters unsuitable for any form of brook trout management.

OBJECTIVE: To maintain a regulated fishery which will enhance the quality of camping and day-use opportunities identified for the park.

The present heavy angling activities and the general increase in angling pressure has given top priority to the provision of maximum angling opportunities whenever possible in lakes which can sustain increased use. It may prove necessary to manage the more accessible and heavier fished lakes on a "put and take" basis. Two styles of fishing opportunity are available in Esker Lakes. These are the easily accessed fishing locations around Panagapka Lake and Allan Lake and the moderate-access fishing opportunities in the interior of the park. Both styles provide various qualities of cold-water fishing. Winter ice fishing has always been a popular activity in the park and the District will continue to encourage it.

Management Strategies:

1. Fall fingerlings will be stocked in all trout fishery lakes with a total dissolved solid (TDS) rating of more than sixty parts per million.
2. Trout fishery lakes with a T.D.S. rating of less than 60 p.p.m. will be stocked with one year old brook trout prior to June. A further refinement of this technique will be used in the form of one, two, and three-year rotational stocking to provide a variety of quality fishing (Table 7).
3. The presumed present rate of angling success for lake trout has been maintained in Lulu Lake by stocking 2,000 lake trout on a two-year rotation plan which commenced in 1973.
4. Northern pike populations are native to two lakes in the park. Management requirements to retain the present population levels will be enforced by the existing legislation governing catch limits and possession limits.

TABLE 7

fg. = fingerling
1yr.= one year
F. = fries

Stocking Plan for Esker Lakes Provincial Park: 1973-1978

Lake*	Zone	Area (Ha)	TDS	Fishing Pressure Rate	No. of Fish	Rotation	Year	Age
			Brook Trout Stocking Unit #5 1973-1978					
Panagapka	Development	21.3	30	1.5	5,460	A	73-78	1 yr.
Allan	Development	15.2	64	1.5	1,980	A	73-78	fg.
Ramey	Natural Environment	10.7	24	1.5	1,665	2	74-76-78	1 yr.
Mall	Natural Environment	12.8	76	1.0	2,530	3	74-77	fg.
Pall	Natural Environment	4.5	36	1.0	320	2	74-76-78	1 yr.
Roach	Natural Environment	5.1		1.0	840	3	75-78	1 yr.
Bea	Natural Environment	5.1	78	1.0	630	2	74-76-78	fg.
Seahorse	Natural Environment	9.1		1.0	1,760	3	74-76-78	1 yr.
			Lake Trout Stocking Unit #5 1973-1978					
Lulu	Natural Environment	45	84		2,000	2	1973	10-20 lbs.
			Smallmouth Bass Stocking Unit #5 1973-1978					
Hazel	Development	23	(intro. stocking)		20,000	A	73-74-75	F.
			Rainbow Trout Stocking Unit #5					
Gaf	Natural Environment	17.2		1.0	3,010	2	76-78	1 yr.

*No stocking plans exist for the remaining 18 lakes

source: Fisheries Management Plan, Esker Lakes Provincial Park, Kirkland Lake District, 1973.

5. Development of new fisheries will include a smallmouth bass fishery in Hazel Lake which is not suitable for a trout fishery.

NATURE RESERVE ZONES: Six lakes are situated in the three nature reserve zones: Stever, Tuke, Thrasher, Little Esker, Clifford and Columbus. None of these lakes have any brook trout potential, four have warm water fishery potential (Stever, Tuke, Thrasher and Columbus) and two have no fishery potential at all (Little Esker Lake and Clifford Lake). Fishery potential for Tuke, Thrasher and Stever is extremely low.

NATURAL ENVIRONMENT ZONE: Nineteen lakes are located in this zone: Lulu, Gaf, Lavery, Skelly, Grover, Gourlay, Roach, Pall, Mall, Bea, Seahorse, Vannier, Ramey, Old Man, Little Boy, Sausage, Primeau, Campbell and one unnamed lake. Of these, Pall, Mall, Bea, Roach, Ramey and Seahorse show good brook trout potential and regular stocking will take place. Gaf appears to be suitable for rainbow trout, and the stocking of this species could be possible. During the summer of 1976, rainbow trout were stocked in Gaf Lake to add angling variety. Two other lakes, Lulu and Gourlay, show good potential for a northern pike fishery. Fishery potential for the remaining ten lakes ranges from nil to poor.

DEVELOPMENT ZONE: Three lakes are found in this zone: Allan, Panagapka and Hazel. Hazel Lake has no potential for any trout species whereas both Panagapka and Allan demonstrate good trout fishery potential. Presently, both are heavily stocked and fished. Because of the extent of park development on Panagapka Lake, weekly water quality tests will be taken to ensure against water

quality deterioration and any ultimate affects on the cold water fishery. In 1974, smallmouth bass was introduced into Hazel Lake in an effort to provide a variety of fishing experiences in the park. This stocking program was not successful.

15.2 Vegetation Management Plan

GOAL: To maintain a natural vegetation cover of high aesthetic, educational and recreational value.

OBJECTIVE: To protect and manage, where necessary, the forest resource so as to enhance recreational, interpretive and wildlife viewing opportunities.

Recent resource inventory work has identified seven features within the park with nature reserve value. All seven features have been included in nature reserve zones.

MANAGEMENT STRATEGIES: Park areas subject to wind throw are those areas immediately adjacent to cut over areas and the over-mature, fire-scarred jack pine in the development zone. The clear-cutting around the park exposes the edges to increased risk of windfall. In most cases, such windfall sites are located in remote areas away from the main centres of recreational activity which are primarily oriented to the central lake chain. It seems probable that windfall will quickly result in aspen and birch regeneration and that this will, in time, provide a sufficient windbreak barrier to prevent further harm.

Die-back is a common occurrence in campground areas particularly in pure birch stands.

The park has a rather complex fire history which can be traced back, by the effects on the vegetation, over a period exceeding 100 years. The oldest trees in the park are white pine and white spruce which are believed to be remnants of a 19th century stand which was destroyed by fire about 100 years ago. Century-old jack pine are also evident, presumably the survivors of the stand which followed this fire. Fire scars are found on many older trees, evidence of still later fires, and it is believed that at least three fires occurred in the area between 1900 and 1945 burning various overlapping areas. The southern portion of the park was the most seriously affected as testified by the young, pure stands of trees. The extreme north and northwest parts appear to have escaped all twentieth century fires and show the most complex development.

DEVELOPMENT ZONE: The area requiring the most intensive management in the park is the development zone because of the general fragility and immaturity of the soil and its susceptibility to compaction. This aspect makes it difficult to protect the vegetation, particularly the ground cover, from damage. The second problem in this zone is the maintenance of an attractive and durable forest cover.

Because of windfall hazards in the Panagapka Lake campground, it is probably not practical to allow the birch to naturally grow old and die thus opening the canopy and promoting regeneration. The apparent solution is to initiate a long-term use/recovery, rotation cycle, probably of 60-75 years, which would allow retirement of one or a number of sites for the selective removal of mature trees. Probably sites in this stage would need to be withdrawn from use for several years. If the "useful" life span of the canopy is determined

to be 60 years and a period of 15 years is required for adequate establishment of the canopy, then the growth cycle would be 75 years. In the early years of regeneration, suitable silvicultural procedures such as thinning and brush suppression by hand-cutting may be used to assist development.

Protection of the campsites from compaction and the maintenance of an attractive and natural ground cover while the sites are in use also requires rotation but on a much shorter cycle. The precise proportions of use to recovery time required can only be established empirically by observing the actual effects in the campgrounds. On an experimental basis a six-year use and two-year rotational cycle will be tested. The rest period may be shortened or made more effective by careful site and rehabilitation techniques.

With the above rotation strategies in mind, the thrust of the 10 year planting schedule is to establish a conifer understory. In this regard, the development zone can be separated into two site types: upland and shoreline. On the upland sites, an appropriate planting mix would be as follows: 100 spruce (80 white, 20 black), 40 balsam fir, 40 white birch, 20 white pine. Areas where birch and pine are to be planted should first have the canopy thinned as far as is compatible with the local site.

On lakeshore sites where higher moisture levels and much higher light intensities are available, a mix of tolerant and intolerant species could succeed. White cedar, red pine, larch and jack pine would be used to vary the shoreline vegetation. In order not to destroy the character of the already existing vegetation, these species should not total more than 20 to 25 percent of the cover. The effectiveness of the campsite rotation and the attempts to establish a conifer understory should be

monitored every 5 to 10 years.

NATURE RESERVE ZONE: The primary natural values in the nature reserve zones are the geomorphological features and late-successional upland communities. These vegetative communities are not in any rapid state of change; therefore, no immediate protection is required except fire protection and the maintenance of hiking trails and portages.

Areas within the nature reserve which are subject to windfall will not be managed to prevent windfall. The proposed management is to allow windfall to occur so that quick succession by aspen and birch will create a natural wind barrier for the remaining conifer forest.

NATURAL ENVIRONMENT ZONES: The management in these zones will be aimed at improving the aesthetic, environmental and recreational values of the area in the context of light, extensive non-mechanical use.

These zones contain most of the younger jack pine stands as well as a few older stands. The recommended management policy for both stands is to let natural succession take its course. Such an approach will not likely result in any notable difficulties for either successional or recreational purposes.

APPENDIXES

APPENDIX 1

TABLE A

Existing Day-use Beach Capacity

	Length	Width	m^2	Instantaneous Capacity	Daily Capacity	Seasonal Capacity
DAY-USE BEACH						
Dry Beach	122 m	30 m	3,720 m^2	158	118	7,316 user-days
Wet Beach	122 m	18 m	2,232 m^2	95	95	5,890 user-days

Average Number of people/m^2 = .0425 persons/m^2

Turnover rate = 1.5 dry beach; 2.5 wet beach

K Factor = .5 dry beach; .4 wet beach

Season (July/August) = 62 days

CARRYING CAPACITY FORMULAE*

Bathing (Wet Beach)

Instant. Daily Capacity = Area of Wet Beach x Average Number of People/m^2 of Wet Beach
Theoretical Daily Capacity = Instantaneous Daily Capacity x Turnover x K Factor
Theoretical Annual Capacity = Theoretical Daily Capacity x Length of Season

Bathing (Dry Beach)

Instant. Daily Capacity = Area of Dry Beach x Average Number of People/m^2 of Dry Beach
Theoretical Daily Capacity = Instant. Daily Capacity x Turnover x K Factor
Theoretical Annual Capacity = Theoretical Daily Capacity x Length of Stay

*Ontario Ministry of Natural Resources, Ontario Provincial Parks Landscape Design Principles and Guidelines, Park Planning Branch, 1977.

TABLE B

Picnicking Capacity

Area = 14 ha

Number of Tables = 100

Space Standard = 8 tables/.4 ha*

Average Number of People/table = 5

Turnover rate = 1.5

K Factor = .6

Season = 62 days

Existing Capacity

Instantaneous Daily Capacity = Average Number of people/table x number of tables

= 5 x 100

= 500 users

**Theoretical Daily Capacity = Instantaneous Daily Capacity x Turnover rate x K Factor

= 500 x 1.5 x .6

= 450 users

Theoretical Annual Capacity = Theoretical Daily Capacity x length of season

= 450 x 62

= 27,900

* Ontario Ministry of Natural Resources, Ontario Provincial Parks Landscape Design Principles and Guidelines, Park Planning Branch, 1977.

** Ontario Ministry of Natural Resources, A Method of Calculating Carrying Capacity, Potential Attractiveness and Management Input of a Site for Varied Use, Research Report #94, Forest Research Branch, Division of Forests.

APPENDIX 2

Water Quality Index

The calculation of lake capacities in development zones of provincial parks has long been a problem. This problem is further accented when one considers esker or kettle lakes which are spring fed and have small surface acreages. Such lakes are very prone to deterioration in water qualities and, therefore, maintaining their water quality is important.

In the Northern Region, this problem is particularly acute where 10 provincial park and park reserves are situated on esker systems. Already, five of these park areas have park development concentrated around esker lakes.

Essentially, then, a formula is required which allows planners to determine and compare a lake's optimum annual user-day capacity to the backshore capacity which in turn allows for the computation of environmentally-sound levels of development.

The methodology outlined here is the method currently being used by Northern Region planners. It is basically a modification of a water quality index formula currently used by Land Use Co-ordination Branch, Ministry of Natural Resources in their lake planning manual (1976). The following description taken from the manual describes this methodology.

"A lake's water quality is defined here in terms of its trophic status. A lake's trophic status depends on the amount of naturally occurring nutrients available to stimulate biological activity. Human development may significantly increase the quantity of available nutrients. On the other hand, natural nutrient input may be so great that human activity would cause a negligible increase. Thus, the more productive (eutrophic) a lake is, the more natural nutrients are available and the more human activity it can sustain without drastically lowering its trophic status. At the same time, a biologically productive lake is less attractive for contact recreation...

Determining the existing water quality of a lake will therefore indicate the sensitivity of the lake to the addition of nutrients through human activities. The water quality is classed and ranked according to an aggregate index of six water quality parameters. The rank will indicate its existing trophic status and thereby determine the amount of use the water can sustain while remaining at approximately the same trophic level. The number of user-days that specific quality can sustain without deteriorating has not been proven, but the estimate is thought to be conservative. Furthermore, in the absence of historical information on a lake's water quality, the index cannot indicate whether the present water quality is due to natural influences or due to human development.

To determine the Water Quality Index these steps should be followed:

1. Look up the recorded information for each parameter and relate it to the score tables for each measurement.
2. When the score for each parameter has been noted, add these to get the aggregate score.
3. The aggregate score will indicate the lake rank according to the Water Quality Index.
4. The Water Quality Index can then be interpreted into an allowable figure of use, given in user-days/acre/year[1]
5. To obtain the total use capacity for the lake, multiply the number of user-days/acre/year as dictated by the rank times the gross acreage.

   i.e. User-days/acre/year X Gross Acreage = TOTAL USER-DAYS

[1] A discrepancy exists between the number of user-days/acre/year used in the lake planning index and that used for this plan. This difference is intentional and is based on the amount of non-detrimental use which both Panagapka and Green lakes are presently experiencing.

Further: a) Iron/Phosphorus ratio is only relevant under anaerobic conditions.

b) If either the secchi disc or chlorophyll A parameters are unavailable, they can be estimated from the Vollenwieder curve.

c) In some cases, lake survey forms will give no total dissolved solids readings but rather conductivity readings. A conductivity/Total Dissolved Solids conversion chart is indicated in the manual for such cases.

d) If any other parameter is unavailable, the index may be used, but the results will be considerably more conservative in terms of the real capacity and the degree of confidence that can be afforded the index will be somewhat limited." (Lake Planning Manual, p. 61)

WATER QUALITY INDEX - SCORE TABLES

MEAN DEPTH

Distribution	Score
0 - .9 metres	10
1 - 1.9 metres	8
2 - 3.9 metres	6
4 - 7.9 metres	4
8 - 14.9 metres	2
15+ metres	0

OXYGEN DISTRIBUTION

Distribution	Score
Clinograde & anaerobic conditions	10
Metalimnetic maximum & hypolimnion depletion	8
Metalimnetic maximum	6
Clinograde	4
Orthograde	0

CHLOROPHYLL A

Distribution	Score
14.1 + ug/l	10
9.1 - 14	7
4.1 - 9	4
2.1 - 4	2
0 - 2	0

SECCHI DISC READING

Distribution	Score
0 - .9 metres	10
1 - 1.9 metres	8
2 - 2.9 metres	6
3 - 3.9 metres	4
4 - 4.9 metres	3
5 - 6.9 metres	2
7+ metres	0

MORPHO EDAPHIC INDEX

Distribution	Score
10+	10
6 - 9.9	8
4 - 5.9	7
2 - 3.9	6
1 - 1.9	5
.5 - .9	2
Less than .5	0

IRON PHOSPHORUS RATIO
(mg/1 iron/mg/1 phosphorus)

Distribution	Score
30+	10
25 - 39.9	8
20 - 24.9	6
15 - 19.9	4
10 - 14.9	2
0 - 9.9	0

(Lake Planning Manual, p. 62)

Total Score	Water Quality Index		User-days/acre/year	User-days/hectare/year
0 - 3	1	Oligotrophic	30	74
4 - 8	2		61	151
9 - 13	3		240	593
14 - 19	4	Mesotrophic	500	1293
20 - 27	5		730	1803
28 - 39	6		100	2470
40 - 60	7	Eutrophic	1,440	3557

The total number of user-days assigned to each class of lake were derived from the existing use of two esker lakes, Panagapka Lake in Esker Lakes Provincial Park and Green Lake in Greenwater Provincial Park. Therefore, these two lakes serve as the benchmark for this exercise. It was assumed on the basis of available data, that the present use of these lakes was not causing any deterioration in water quality. Panagapka Lake is a #4 Mesotrophic lake. Its present use approached 24,000 user-days annually. The formula indicates its maximum annual user-day capacity at 26,500 user-days annually.

Green Lake was a #3 Oligotrophic lake. It could accommodate 8,005 user-days annually.

APPENDIX 3

Adjacent Land Uses

The following are existing or proposed management strategies to be employed in the area surrounding the park:

TIMBER MANAGEMENT

A. Logging

The area surrounding Esker Lakes Provincial Park has been logged over during the past several years. Since the sandy nature of the soil supports pure stands of jack pine, the harvest technique employed has been clear-cutting.

Following the removal of the stands, a concerted effort has been made to regenerate the cut overs back to jack pine through the planting of container and nursery stock or direct seeding. Early results of the regeneration surveys indicate a 70 percent success rate. Refill has been necessary in areas that have fallen below acceptable levels of stocking. With successful regeneration, timber harvesting will take place again in about 70 years.

Present silvicultural techniques and proposed policies covering the size of clear-cuts will probably dictate future cutting patterns adjacent to the park. In the future, clear-cut areas will be limited to 64.75 ha blocks arranged throughout the area. As a result, the total area would be cut over a period of about 20 years. The purpose of such a policy is to offer a great deal more site protection combined with better aesthetics.

B. Logging Roads

The roads throughout the area adjacent to the park have been constructed by the logging companies working in the area. Guidelines are set on the "Approval to Commence Cutting Operations" to ensure care is taken in the construction of these roads through areas that are particularly sensitive (i.e., a stream crossing roads through timber reserves).

The road into Esker Lakes Provincial Park has been used during summer week days and fall and winter months as the main road for hauling cut logs to Highway 66. Summer weekend hauling is prohibited to ensure park-user safety.

The Management Plan for the Kirkland Lake Management Unit stresses the need for a permanent road system throughout the unit to allow effective protection and access for more efficient forest management. Some of the roads constructed by the companies will form part of this permanent road network. These permanent roads will not require a great deal of maintenance. All other roads will be allowed to grow back.

C. Prescribed Burning

The Management Plan for the Kirkland Lake Management Unit specifies prescribed burning as an acceptable site preparation tool for the regeneration of jack pine. Under proper conditions, prescribed burning will continue to be used for site preparation on the Kirkland Lake Management Unit. However, there has been an agreement within the District that prescribed burning will not be used in the area immediately adjacent to the park. The possible adverse public reaction to such an operation overshadows any

silvicultural advantages that might be obtained.

D. Aerial Release

Since the soil surrounding the park is predominantly dry sand, deciduous brush and grass competition in the newly-regenerated areas is not a major problem. Therefore, there is a low requirement for large-scale aerial release operations within adjacent plantations.

To reduce the need for release treatments following plantation establishment, larger nursery stock will be planted on those sites that are identified as possible areas of heavy competition. Since the areas requiring release spraying will be of a small and patchy nature, hand cleaning or hand spraying will be the type of tending operations employed. There will be no requirement for aerial release treatments in the area immediately adjacent to Esker Lakes Provincial Park.

LAND MANAGEMENT

(1) Cottaging

There is a lake management plan in the draft stage for the Howard Lake chain in Arnold Township and Katrine Township 8 km southeast of the park. The proposed maximum development is 39 linear shoreline units in addition to the 39 units presently existing on Howard Lake. Lauramay Lake in Bisley Township, and Kellett Lake bordering the townships of Bisley, Morrisette, Melba and Bernhardt may receive future consideration for a few remote cottage sites.

(2) Mining Activities

There is presently limited mineral exploration in the immediate vicinity of the park, but mineral potential is fairly high in the area. The possibility of mining activities will have to be dealt with if and when the situation occurs. The only aggregate deposit adjacent to the access road is presently reserved by the Ministry and extraction pits will be adequately buffered.

(3) Municipal Annexation

Melba Township, 6.4 km west of the park, is now within the Township of Black River-Matheson. An application has been filed for annexation of the Townships of Bernhardt and Morrisette by the Town of Kirkland Lake. It is likely that this application will be approved because of the location of Kirkland Lake Airport in Morrisette Township. These townships along with Arnold Township are currently being considered in a local government study being conducted by the Ministry of Treasury, Economics and Intergovernmental Affairs.

FISH AND WILDLIFE MANAGEMENT

(1) Hunting

No special management or legislation is anticipated for hunting in the area surrounding the park.

(2) Fisheries management

Due to the limited warm water fishery in the park, consisting of Gourlay and Lulu lakes, park users exert extra fishing pressure on the warm water lakes adjacent to the park, particularly on the Howard Lake chain southeast of the park. This use may necessitate

the introduction of specific management practices to these waters to maintain quality fishing. It may also be necessary to increase stocking in the brook trout lakes adjacent to the park to offset park oriented angling increases.

(3) Trapping

With the exception of nuisance beaver removal to protect the park access road and vistas, no special management techniques will be employed.

APPENDIX 4

Public Participation Program

At the commencement of the master planning exercise for Esker Lakes Provincial Park, a notice was placed in the Northern Daily News, the local Kirkland Lake newspaper. This notice advised Kirkland Lake and area residents that a master plan was to be prepared for Esker Lakes Provincial Park and requested public information or comments pertaining to the park.

Upon completion of the preliminary master plan (December 1977) the Minister of Natural Resources released the plan for public review on January 4, 1978. In his statement, the Minister indicated that copies of the preliminary plan were available on request from the Division of Parks, Queen's Park, Toronto and from the District Manager, Kirkland Lake District. Comments on the preliminary master plan were received by the District Manager, Kirkland Lake District up to February 2, 1978.

During the public review period, the plan received wide coverage by two local newspapers, the Northern Daily News (Kirkland Lake) and the Daily Press (Timmins).

In total, the District Manager received approximately 20 submissions, all of which supported the objectives, zoning and management strategies for the park and some of which suggested minor changes to the report.

All minor changes suggested by the public were incorporated into the plan and it was submitted to the Minister of Natural Resources in March 1978 for review and approval.

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